The Lumleian Lectures

ON

THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.

Delivered before the Royal College of Physicians of London,

BY SIR RICHARD DOUGLAS POWELL, BART., M.D. LOND.,

FELLOW OF THE COLLEGE; PHYSICIAN EXTRAORDINARY TO HER MAJESTY THE QUEEN; AND PHYSICIAN TO THE MIDDLESEX HOSPITAL.

LECTURE I.[1]

Delivered on March 24th.

MR. PRESIDENT AND FELLOWS,—In a rash moment on being honoured by the request of the Council of the College that I should this year give the Lumleian Lectures I chose the subject of Heart Disease for my text. It was something of the feeling expressed by the late Dr. W. Stokes that heart diseases tend still to be regarded from too detached a point of view that lead me to this selection. One may, for instance, still read of angina pectoris as a separate and fatal affection of the heart instead of its being regarded as a painful incident of varied significance that may occur in the course of a wide range of functional and organic diseases of the cardio-vascular system. Separate chapters must be devoted to describing the peculiarities of aortic, of mitral, of pericardial, of trophic diseases, of the heart, but the effectual grasp of their practical treatment is weakened unless they be gathered up again for review from more comprehensive standpoints. I have at least no other excuse for again dealing with a subject that has recently and so ably been brought before the College in almost every relation by our distinguished Fellows—Dr. Leech, Dr. Lauder Brunton, Sir W. Broadbent, and Dr. Markham Skerritt—and treated of in several able works which have recently appeared. It is easier to find "books in the running brooks" and "sermons in stones" than to thread the current knowledge of a familiar subject into a discourse suggestive, interesting and helpful to those to whose thoughts in their daily work it must be ever recurring. It is, however, one of the functions of the Lumleian lecturer to attempt this, to review from the side of experience and clinical observation the net results of most recent researches and to endeavour to show how far they should influence us in our daily practice.

There is perhaps no branch of medicine in which, notwithstanding much knowledge, the confidence of the practitioner is so easily shaken and in which he is so apt to relinquish the courage of his opinions as in heart diseases; and there is none in which the public, who treat their hearts with too much respect and their nervous system with too little, require such firm and steadfast guidance at the hands of our profession. In my endeavour to lay down the lines of treatment of heart disorders and diseases I will first speak of such modifications of the cardiac functions as are the result of disturbed or even organically changed innervation of the heart and vessels, the heart itself being sound. Secondly, I must glance at similar disturbances of extrinsic sources as they affect an unsound heart. Thirdly, I will endeavour to group from a therapeutic point of view the intrinsic disablements and diseases of the heart mainly under the headings—(1) of heart failure in acute disease; (2) of cardiac overstrain; (3) of chronic heart failure; (4) of acute inflammatory cardiac affections; (5) of chronic valvular affections of the heart; and (6) of ulcerative diseases of the endocardium.

In order to understand so far as is at present possible functional diseases of the heart and to arrive at a point from which we may safely take further steps in their apprehension we must have clearly traced in our minds the paths of direct and indirect cardiac innervation and the vaso-motor nerve mechanism. I have with the kind help of my friend Dr. Risien Russell illustrated these two systems of nerve mechanism on separate charts which show with precision our anatomical and physiological knowledge which has been brought to its present degree of completion by the labours of Bernard, Roy, Adami, Bradford, and others, but most especially of Gaskell. These diagrams will be quite sufficient without any further description from me to bring afresh to your minds the main points respecting the innervation of heart and vessels with which you are well acquainted and will serve for reference at any time in the course of my remarks. It is impossible to isolate the heart from the vessels when thinking of its functional disturbance; we must look upon the cardio-vascular system as a whole. Originally a mere branched contractile tube, it is now but a highly differentiated tubal apparatus with a nervous mechanism which has grown in complexity *pari passu* with the manifold interests of the circulation in the extended empire to which it has to minister. With considerable accuracy the blood may be said to be held in the grasp of the cardio-vascular tubes; that the blood current is maintained and directed by the rhythmic pumping action of the two ventricles and by the position of the valves. The tendency is for the muscular arterial system to evacuate all the blood into the lax and capacious venous system, but the due proportion of blood distributed to the arteries and veins is secured by the controlling action of the small vessels which regulate the flow through the capillaries. The heart and vessels are, indeed, an intricate mechanism, one part of which reacts upon another, each segment being sensitive to the controlling influences initiated by the needs of the organ or tissue which it serves and the whole coördinated by the central nervous system to the control of which it is in every detail subservient. Whenever any commotion occurs of sufficient intensity beyond the common in any department of the circulation our consciousness becomes aware of it, but it is of disturbances excited in the heart's doings, although they may be but central to a more widely ranging disorder, that our consciousness takes especial note.

There are unquestionably a large number, perhaps an increasing number, of people who are morbidly conscious of their heart's action, indeed of the function of their cardio-vascular system generally or in particular parts. They feel disturbances, flutterings at the heart, throbbings, flushings, pallors of the surface or parts of the surface or of particular organs, noises in the vessels about the head and apart from, and in the intervals of, these more definite sensations they have a sense of their heart beating and appreciate sometimes a disorder, an intermission, or a faintness in its action. This condition, or group of conditions, and the thousand and one variations to which it is subject, are the result of purely nervous disorder. It occurs in people of both sexes, mostly young people between puberty and thirty, of nervous inheritance, or who have exhausted their nervous system in various ways by dissipation, excess of tobacco, alcohol, venery, or over-pressure of brain work. It is amongst the class of so-called "neurotics" that functional disorders of the heart so largely abound and it will be well to try to answer the question, What constitutes a "neurotic person"? The term is constantly and increasingly used; has it any definite meaning? A neurosis is a functional, as apart from an organic, disturbance in a nerve centre and the disturbance is generally manifested as an hyperæsthesia. A neurotic person is a person whose whole nervous system, and especially that portion of it known as the organic nervous system, is hypersensitive and abnormally within his cognisance. "Neurotic" is sometimes used as a term of reproach; it is often confounded with hysteria, which is indeed but one of its lesser manifestations. It is a condition of nervous system, sometimes acquired, but more often hereditary, very widely prevalent even in our cold-blooded race and which is perhaps a national characteristic in some brighter climates. The neurotic element is a factor to be reckoned with in practical medicine, and whilst sometimes found amongst the self-indulgent is quite as often seen in persons with a high degree of self-control, an invincible courage and a restless energy and enterprise. It is especially prevalent amongst the educated classes and is a marked feature in many highly gifted and interesting people. The tendency of the neurotic is to intemperance in thought and action: he will shrink from a little pain but heedlessly rush into

[1] Lectures II. and III. will be delivered on March 28th and 31st respectively.

great danger; his cerebration is quick, alert, often fantastical, and he excels in crafts requiring intensity rather than quantity of cerebral function. If we physicians are sometimes dazzled by his mental brilliancy, his powers of acquisition, rapidity of thought, brilliancy of conversation, we are more often bewildered by his powers of suffering. Introspective in many ways, he is morbidly so with regard to his own physiology. Just as some persons are gifted with an intensity of hearing which enables them almost painfully to appreciate the overtones which occupy ethereal spaces, dumb and dark to their fellows, or to recognise sounds and impulses that are appreciable only to single specialised faculties of the lower animals, so there are some persons who are in an exaggerated degree sensible to their own organic mechanism, sensitive to the physiological working of that mechanism as distinguished from painful or morbid function. Our sense of life is probably a pleasurable impression of undiscerned physiology. But it is of our cardio-vascular mechanism that of all functions we most readily become conscious and that apart from any actual suffering we most often become unduly conscious, and it is in this department of their physiology that these over sensitive persons whom we classify as neurotics are most apt to suffer. Although the attentive observer could at sight pick out from a crowd of persons the two or three neurotics present he would be much puzzled to give his reason for so doing. Perhaps an indefinable alertness of the facial muscles, a quickly changing expression, a mobile and slightly contracted pupil, with increased sclerotic exposure, are the characteristic features. These persons have a quick circulation, a somewhat raised and variable arterial tension, their thermic centres are unstable and temperature charts with them have to be discounted. Neuralgic affections are common and amongst them and in their families will be found the other functional nervous complaints, migraine, epilepsy, asthma, hysteria, and the visceral neuroses so well described in this place by our colleague Professor Clifford Allbutt. From the social side they are delightfully portrayed in some of the stories of a Member of our College who writes under the pseudonym "Philip Lafargue." I must apologise for making these digressive remarks on neurotics, but the term has crept into frequent use; I may have often to use it myself in this lecture and I am anxious to give as much definiteness as possible to the idea it should convey.

Functional disorders of the heart are sometimes due to a defect in the organ itself, more commonly they are caused by stimuli reflected from distant organs or parts, generally dependent upon morbid states of the blood circulating through the heart or disturbing the centres of its nervous mechanism, an acquired or hereditary instability of the nervous system being often recognisable. In endeavouring to lay down the lines of treatment of functional disturbances of the heart we must hold in comprehensive review the vast tangle of circumstances which thus influence directly or indirectly the now sufficiently well-defined cardiac innervation. I have endeavoured in Table I. to summarise the causes of that want of stability which marks the function of the neurotic heart.

TABLE I.

Cardio-vascular neurosis.—Definition: An increased sensibility and a disordered action of the heart and vessels not dependent upon structural change. Want of stability may be located in the cardio-vascular muscle caused by:—

1. Malnutrition	Anæmia.
2. Defective metabolism	Fatty infiltration; retention of effete materials.
3. Morbid blood stream	Gout; renal or liver inadequacy or surcharge; anæmia.
4. Functional overstrain	Fatigue.

Want of stability may be located in the nervous system and due to:—

1. Toxic influences	Specific pyrexias; nicotine; alcohol; digitalis; uric acid and its allies; excessive absorption from ductless glands; deficient absorption from ductless glands.
2. Reflex excitation or depression ...	Abdominal: gastric, renal, intestinal, hepatic; pelvic; dental.
3. Direct excitation or depression ...	Emotional: anxiety, fear, anger. Brain disease or injury: concussion, compression, meningitis, cerebritis, &c.

There are three stages or degrees—if we may so speak of them for convenience—of cardio-vascular hyperæsthesia. The first degree, consisting of that undue appreciation of the heart's action and the blood circulating through the vessels to which I have alluded, is extremely common in nervous introspective people. The heart's action may be quite normal, but it is liable from slight causes to become paroxysmally excited and accelerated. The pulse tension is variable. The patients are all of the neurotic class, the neurosis being hereditary or acquired through the usual causes. I have described instances of this degree of cardiac disturbance in a brother and sister whose father died insane, their mother from spinal paralysis, their grandmother was on the verge of insanity, and the brother was highly neurotic. But alcoholic, social, and tobacco excesses and mental overwork will produce the same effect. The next degree is that in which the heart's action is really oppressed to a point varying from a mere vague anxiety such as that alluded to by Hamlet when he says, "But thou wouldst not think how ill all's here about my heart," to a positive discomfort and onwards to the third degree, the acute suffering of angina. Increased arterial tension is an essential factor noticeable in the second class of cases. These persons, be it remarked, may not be introspective; their attention is not concentrated upon their circulation, but is compelled thereto by actual discomfort or pain. It is interesting to note that that vague and ill-defined anxiety concentrated about the heart of which so many of these patients complain is closely allied in character and probably in mechanism, but in very mitigated degree, with that cardiac terror so characteristic of angina pectoris. Although slight and difficult to define this discomfort is one of the most common causes of such patients seeking advice "for something wrong about the heart." The usual symptoms of increased arterial tension are present and are to be traced to the usual causes of that affection—viz., mental shock, anxiety, hurry in work, sedentary lives, numerous and overlapping social functions, constipation, the threatening of a gouty storm, &c. There is no cardiac lesion necessarily present, although, as we well know, chronic high arterial pressure will in time lead to, and is often attended by, gradual cardiac changes of a degenerative kind. It is from amongst the first two classes of cases—not distinct but merging into one another—here referred to that the cases of vaso-motor angina come. It is not difficult to see how shock, chill, emotion, dyspeptic distension of nerve-endings, and other causes referred to in Table I. may so increase arterial resistance as to cause cardiac embarrassment and anginal pains. Paroxysmal attacks of palpitation or tumultuous action of the heart are not uncommon incidents in connexion with especially the second degree of cardio-vascular neurosis described, the attacks being attributable to sudden vaso-motor relaxation or to vagus irritation from dyspeptic or gouty causes. Now the first degree of cardiac hyperæsthesia is most common in young adult life in both sexes, but more common amongst males than females; cases are not infrequently met with in females later, about the menopause and even in later life. Those in the second category are far more common amongst males and prevail most from about thirty-five to fifty years of age.

The time at my disposal will not permit me to consider at any length the perverted physiology of neurotic disturbances of the heart and vessels. Its details are well understood—the paths of transmission are anatomically marked out for us; the causes of disturbances of central origin, those originating in irritation of visceral or peripheral nerve-endings, the toxic effects of undue absorption from glands, thyroid, adrenal, ovarian, testicular, as well as those of retained excretory products, from defective elimination or over-production, are all recognised as more or less potent factors in cardio-vascular disturbances; and finally, the effects, immediate or remote, of drugs—digitalis, atropine, tobacco, the whole range of hypnotics and analgesics, cocaine, antipyrin, phenacetin, sometimes prescribed by the medical attendant but sometimes taken without his sanction. It is very difficult precisely to formulate the harm done by amateur drug-taking for pain, sleeplessness, and spasmodic suffering. It seems to me that it may be clinically summarised by saying that the controlling centres of the nervous system suffer chiefly, emotional disturbances are more easily excited, reflex agitation is less controlled, and the cardio-vascular and thermic centres are diminished in tone. No doubt those innocent and attractive little bottles of tabloids which are so freely scattered on the toilet tables of society have much to do with

the increase of the neurotic disturbances of the heart and vessels which unquestionably is a medical feature of the present generation. A neuralgia which in former days necessitated the called-for nerve rest is now promptly subdued by a dose of antipyrin or anticalmin and the patient is enabled thus to take a further step in nervous fatigue without direct suffering. Neurotic persons as a class take too little food, are always hurried over the meals and in the details of life, they eat too fast and have a tendency to exceed in nerve stimulants, tea, tobacco, alcohol and certain drugs, or they find their excitement in social entertainments. Obviously in the younger people—the causes of cardiac disease being excluded—soundness of heart may almost be predicted; in the older cases in both sexes, on the other hand, there is more anxiety on this ground. It is in all cases essential to make a thorough examination of the heart and to come to an absolute diagnosis, for the treatment rests largely on moral grounds and must be supported if possible by an assurance of physical soundness. If on careful examination the position and dimensions of the heart be found normal and the character of the impulse and sounds be such as are not incompatible with textural soundness of the valves, an absolute opinion can be expressed. There is undoubtedly room for anxious consideration and hesitation in regard to the character of the impulse and sounds of the heart in many of these cases, for the impulse is often violently increased and apparently extended by undue locomotion of the organ and the sounds are perhaps disorderly, reduplicated, and not infrequently attended with murmurs. Still a careful investigation, selecting a time when the action is more tranquil, will in most cases suffice to convince the experienced observer as to whether such sounds are significant of organic disease or compatible with mere disorder. Functional murmurs do not strictly accord in position and conduction with those due to valve defects. Any such murmurs present are always systolic or post-systolic, often somewhat frictional in character, never in my experience diastolic or presystolic, and most generally are heard with undue loudness over the neck vessels or sometimes are very apparent over the lung even remote from the heart, and especially so during inspiration. There is no history of rheumatic fever or of previous heart disease. If the patient who suffers from any disturbance of the heart's action, whether it be mere abnormal consciousness of its action or the most severe palpitation or anginoid attacks, can be truthfully assured that there is no organic lesion, that his troubles, however painful or distressing are not mortal, a most important step is taken in the treatment. On the other hand, we have most of us seen patients whose lives have been rendered miserable with the ever-present fear of death owing to a hasty and ill-considered diagnosis of a weak or a dilated heart—a diagnosis that should never be made without the gravest sense of responsibility and requiring in some cases more than one careful examination. It was only very recently that I was consulted by a young married woman, formerly of active, energetic, useful habits, who had been told by a medical man whom she had consulted when away from home that she had a weak heart. She had been taking the utmost care of a healthy organ ever since, resting half the day, never even walking upstairs, until she had become fat, breathless, anæmic, and miserable, and it will be many months before she will be fully weaned back to her former healthy activity, if this ever occurs.

Having come to a diagnosis and reassured the patient with regard to prognosis the next point is to investigate the patient's mode of life with a view to correct physiological errors, if such there be. A sample day's doings noted down and corrected here and there as the case may demand is an elementary measure of treatment. The removal of the morning cup of strong tea or its replacement by a small cup of warm milk diluted with Vichy or other water, the arrangement by rising a little earlier for a leisurely breakfast and time for a proper relief of the bowels before entering upon the day's work, the avoidance of rush at the luncheon hour, and the securing of a quiet hour before dinner will, with a few sensible directions with regard to the dietary, do much to render digestion more complete and quiet the nervous system. Many of these people have really but little to do, but they are always in a hurry about it. Another considerable portion who earn their daily bread and support their families by hard and exacting toil are yet impelled by their nervous energies to occupy all their leisure evenings, off afternoons, and Sundays with honorary secretarial duties or teaching or amateur philanthropy,—all duties which with a heavy heart but a determined mind the physician in these particular cases has to prune down in order that they may continue to do that which is essential for themselves and their families.

But there is yet another class of men, chiefly in the forties and fifties, who in earlier years have been physically active, even athletic, but of late, with quadrupled professional, business, domestic and social affairs on hand, have lost leisure for exercise, yet preserve their powers of eating and drinking as regards quantity but enriched in quality. All such tend to venous plethora, retarded circulation in their great organs, heightened blood-pressure, fat-laden and infiltrated heart, and from them a large contingent of functional heart disorders are furnished. These are the cases in which a yearly course of the waters of Harrogate, Homburg, Carlsbad, Marienbad, &c., is so valuable and in which the terrain cure of Oertel is to be advocated, but a little wise overhauling of the dietary by the physician, the resolute acceptance of such by the patient, and the adoption of steady daily exercise dovetailed in with the work will do much to perpetuate cures thus initiated. I shall allude to these cases again and need only now say that their hearts are lazy and hampered, not weak; they require sensible guidance not to have cardiac introspection as an administered neurosis.

Having (1) given an absolute diagnosis, and (2) having investigated and corrected the habits of life in whatever respect they may be faulty, we have (3) to ascertain and remove—or, at least, to treat—the exciting cause of cardiac disturbance. These are for the most part reflex, gastric, intestinal, rectal, and renal. I have seen very striking instances of floating kidney attended with great functional disturbance of the heart and sometimes also pulsation of the abdominal aorta. Exostosis, bad teeth and other sources of distal irritability are frequent causes of disturbed cardiac innervation. The following is a simple case in point. A married woman, aged thirty-six years, seen with Mr. Armstrong of Buxton, had for two years suffered from excessive cardiac irregularity and frequent attacks of spasmodic heart pains. She attributed her illness to much previous mental anxiety. Her symptoms had increased the last few months and the cardiac disturbance became so constant that she could neither go into society nor receive friends. There was no valvular disease of the heart and its dimensions were normal, but the action was most irregular and intermittent. Her teeth were extensively decayed, surrounded with tartar, and the gums were unhealthy. She had declined to have them seen to, however, and she was put through a course of Nauheim baths and resistance exercises and her digestion attended to with only slight relief. After the consultation she consented to have her affected teeth removed under gas and ether, which she took well, and from that time her cardiac symptoms have entirely ceased, although Mr. Armstrong adds: "She has been exposed to even greater nerve-strain than before." In this case there were no marked dyspeptic signs and the cardiac symptoms seemed to be due chiefly to the reflected irritation of the decayed teeth.

Professor Clifford Allbutt in his Goulstonian Lectures alludes to many cases of cardiac attacks of a functional kind, with very slow, quick, or intermittent action and in some with distinct anginal symptoms, which he had observed to occur in connexion with, often in succession to, or alternately with, some form of visceral neuralgia, especially gastralgia, or some uterine disturbance, such as menorrhagia. No doubt in many of these cases the neurosis is really central. Professor Allbutt points out that pulmonary gastric and cardiac neuroses are often concurrent in families and I have seen a striking instance in which they have each been present at different times in the same individual. Here it is clear that we have to do with a central neurosis manifesting itself in different viscera at different times. Professor Allbutt is, moreover, careful to point out that in his cases of cardiac disturbance following gastralgia there was no dyspepsia proper. The causes of high tension other than those mentioned must be looked for and if possible treated. The gouty disposition has to be reckoned with. In this department of inquiry and rectification will come the causes of those conditions of the heart muscle which, rendering the organ especially irritable and inadequate in function, are accountable for breathlessness, palpitations, and spurious anginal seizures. Fatty infiltration of the inter-muscular

texture and incomplete removal of waste materials from the cardiac muscle briefly constitute the pathology of these cases and their etiology chiefly consists in indolent, self-indulgent living, including rich and too plentiful food, often alcoholic excess and too little exercise, the other chief cause being the cessation of hæmorrhagic or other fluxes which attend the climacteric period of life. Venous plethora is the marked feature in all these cases, and graduated exercises, restrictions in diet and hepatic depletory medication are the principal measures of treatment. The diet should in these latter cases be carefully looked to. It should be spare, slowly eaten, taken at regular meal times only, and may consist of a good breakfast, a moderate amount of fresh cooked meat without fat for luncheon, and poultry or game for dinner with fish and a little soup. Starchy and root vegetables and bread should be removed, or only very sparingly allowed with the lunch and dinner meals, crisp toast or biscuits being substituted for bread. The amount of fluid taken with the meals should be restricted in decided cases to a claret glass with luncheon and two glasses with dinner. This may consist of one or other of the light wines or diluted spirit in measured quantity. About from an hour to two hours after or from half an hour to an hour before meals a glass of plain hot water should be slowly sipped to supplement the fluids taken. I shall deal further with the question of exercises for these patients later when speaking more specifically of the Oertel and Schott methods of treatment, which are particularly adapted to them.

The great principle that underlies and should govern the whole treatment of functional and neurotic heart affections is a steadfast endeavour to help the subjects of them through with their lives and not to make invalids of them or to allow them to become so. They may require treatment for definite times, and one even meets with some rare neurasthenic cases requiring the Weir Mitchell treatment, they may require restraint in definite ways—perhaps some limit marked out in their work; but the utmost care must be exercised to discourage the introspective habit to which they are particularly and from the very nature of their malady prone. All instrumental treatment or observations of them should be avoided. They should be enjoined to take moderately active open-air exercises with the direction to take the deepest possible inspirations, so as thoroughly to ventilate the lungs and stimulate complete cardiac circulation. Great temperance in alcohol and tobacco and moderation both in tea and coffee must be observed. For those who are delicate, easily fatigued or mentally hard-worked a period of rest before meal times must be insisted upon and particularly before the late dinner. Where social engagements and professional or other work overlap one or other must of course be curtailed. It is at the same time of the utmost importance to secure to these people their interest in their surroundings and not ruthlessly to interfere with such duties and amusements, philanthropic, religious, or social, as may be the salt which savours their doings. We have to adjust, to apportion, not to spoil the daily life. In the more pronounced cases the passive exercise and soothing monotony of a well-planned sea voyage is sometimes very advantageous, only, however, for those who are able to eat and sleep well on board ship. The restful regime of a spa suits others, the particular spa being selected for its chalybeate or its eliminative effects as the case may require. The more formulated treatment by surface stimulation from aerated saline baths, combined with rest and passive resistance exercises, proves very beneficial in some cases, more particularly those in which there is a gouty element, the arterial tension ranging high and nervous introspection not being too marked a feature. A definite course of spa treatment is often useful—indeed, sometimes essential—in serving the purpose of inculcating the habit of self-discipline and starting the patient on a better regulated and more physiological plan of life. Drugs are of course often required in the treatment of functional disturbances of the heart, purgatives or laxatives, and particularly an occasional mercurial to lower arterial tension and to remove irritating materials. Sometimes nerve sedatives of the bromide order are required or hæmatinics, especially arsenic and iron as tonics to the nervous system and blood restorers. Strychnia is often very badly borne by patients of the neurotic class except perhaps for short periods, and where a cardiac tonic is required caffein is more appropriate. In cases of venous plethora a course of salines is sometimes necessary and in gouty cases suitable remedies. It may, however, be said that there is no special drug treatment for cardiac neuroses except in some of the acute and stormy manifestations to be next considered.

It is a fact which is perhaps too often forgotten in clinical medicine, but which I am sure the experience of those present will recognise—viz., that functional disturbance similar in kind to those we have been considering is as frequently observed in association with diseased as in healthy hearts and that many of the troubles and some of the catastrophes of cardiac disease are attributable to functional derangement. Numberless people die from functional disturbance of a diseased heart, few or none die from functional disturbance of a sound heart. Hence the importance of a definite diagnosis in every case as to which category it belongs. In speaking, therefore, of the treatment of angina pectoris in its place amongst cardiac neuroses I shall deal with it in so far as it occurs as a neurosis both in connexion with healthy and unhealthy hearts and I shall reserve the other forms of angina for later consideration. The subject of angina pectoris is a difficult one enough to formulate with regard to etiology and morbid mechanism with a view to prophylactic and remedial treatment. The difficulties diminish when we recognise that there is a continuity in the phenomena presented to us for treatment from the slighter degrees of introspective recognition of the cardio-vascular mechanism, through the more distinct evidence of cardiac anxiety and distress in connexion with the higher and more persistent grades of arterial tension to the paroxysmal attacks of acute breast pang associated with a veritable asthma of the blood-vessels which may supervene in any cases of the series, and this continuity is to be observed between so-called false and true angina, although some writers will only admit the term angina as applicable to the fatal cases of coronary origin.

We have discussed the neurosis, we have briefly alluded to points of treatment for the condition causing the high tension and leading up to the paroxysms, and we must now briefly outline the treatment of the paroxysm itself. In a large proportion of cases angina pectoris is an entirely functional disorder, the main feature of which is sudden increase of blood-pressure and a correspondingly sudden call upon cardiac effort; it may be on the systemic, it may be on the pulmonary side of the circulation that the strain arises. There are many causes which will bring about this arterial spasm and there is the underlying neurosis which favours its occurrence. The causes are almost all within our scope of remedial treatment and the neurosis is subject to considerable modification and control. But it is important to remember that in all these cases whilst it is the heart that suffers the angina, the conditions which originate that suffering are outside the heart, and all our treatment is directed in the first instance to alter these external conditions and in the second to support the heart. There is no essential difference save in degree, and not always in degree, between cases of angina in which the heart is sound and those in which it is unsound, but there is every difference in the gravity of prognosis and the urgency for treatment in the two cases. For whilst on the one hand the man or woman who has angina with a sound heart is in no danger of dying, and the object of treatment is to relieve suffering and avert alarm until the perverted physiology has time to rectify itself, in cases, on the other hand, in which there is unsoundness of heart, whether textural or valvular, the patient is in imminent danger and requires prompt treatment to relieve suffering and to avert death if death can be averted. The cause of distress is in these cases contraction of the peripheral or general visceral or pulmonary vessels, giving rise to muscular strain of one or both cardiac ventricles suddenly induced and of a colic or cramp-like character. The pains thus induced and situated are reflected along the multiple paths of sensation which directly or indirectly converge to the heart. The cardiac pain in vaso-motor angina is difficult satisfactorily to explain; it is distinctly a result of intra-ventricular pressure and from its character and radiation it must be primarily an affection of the sensory nerves of the heart caused by stretching of its tissues and causing the contraction of the tissues to be attended with pain. The endocardial surface is more sensitive than the pericardial surface of the heart; but comparatively insensitive tissues when stretched become very painful. Dr. Allen Sturge observes that reflected pain is only an ordinary sensation conveyed to a nerve centre in commotion by which it

is intensified to a painful sensation. Thus may the reflected pains be accounted for as emanating from the centres disturbed through the cardiac nerves. Contrariwise we have only to conceive a slight degree of hyperæsthesia of the organic nerve centres to account for that undue perception of the cardio-vascular mechanism which is the first grade of neurotic disturbance and which can readily become a painful perception of increased pressure within the heart. The two points requiring consideration in an anginal attack of the kind now under consideration are the pain and the degree of heart failure. The pain, which is to a certain extent the measure of the strain upon the heart, is to be attacked by remedies which relax arterial spasm. Amyl nitrite, nitro-glycerine, and the nitrites generally, but especially nitro-glycerine, 1 min. of the nitro-glycerine 1 per cent. solution may be given at intervals of five minutes for two, three, five, or more doses, and at the same time that the anti-spasmodic is given an appropriate cardiac stimulant is required. In the more purely neurotic cases it is most desirable to avoid alcohol. There is no better stimulant than slowly sipped hot water. Dr. Lauder Brunton has pointed out that sipping is a physiological stimulant to the heart and hot drinks tend to relax arterial spasm. A prescription for a carminative draught, including ammonia, chloric ether, and valerian or cardamoms is valuable to be taken in several sips. Warmth to the surface and especially to the extremities is the further requisite. The second stage of these cardio-vascular attacks is one of reaction and excitement to be followed by fatigue. Often by the time the medical observer arrives the cardiac pressure has already been relieved through the depressor nerve of the heart excited by intra-ventricular pressure bringing about relaxation of arterial spasm, the first violent throbbing or the threatened standstill of the heart has already yielded to quick, perhaps somewhat irregular, beats, the tension of the pulse is no longer apparent and this fact has no doubt led many observers to question the alleged mechanism of this form of angina. With the help of a few hours' rest in bed the patient may be again fit for the duties of life, although usually a sense of lassitude and fatigue remains for a few days. It is now that the cause of the attacks must be sought out, the conditions of the heart carefully ascertained and the daily life, diet and surroundings and functions of the patient must be investigated and corrected where in error. Thus is outlined the bare treatment of the anginal attack. If there be no heart disease present the patient must be thoroughly reassured on that point. In cases, however, in which there is heart lesion present much more attention must be given to the after-treatment and the prognosis depends upon the nature of the lesion present. It is not my duty here to enter upon this latter point. I would briefly say that the gravest cases are those in which there is enlargement of the heart without or not accounted for by valvular defect. I would mention the fibro-fatty heart, the syphilitic heart, and the renal heart in this category. Aortic stenosis and aortic regurgitation come next, the regurgitant defect being by far the most common. Mitral stenosis is not infrequently attended with anginal seizures, sometimes of a fatal kind, and the attacks would probably be more frequent were it not for the readiness with which pulmonary hæmorrhage occurs. Mitral regurgitation as the primary disease is rarely accompanied with angina, and when it supervenes upon cases due to degenerative hypertrophy and dilatation it tends to preserve the patient from future attacks. Now on all these cardiac conditions anginal attacks may supervene having precisely the same mechanism as the attacks I have already considered as unattended with cardiac disease. It is most important to bear this in mind, for the treatment is precisely on the same lines, only it must be more urgently pursued, for the heart may readily fail under the initial strain and can scarcely escape damage therefrom; moreover, the subsequent fatigue is far more serious. I had recently in my ward a young man admitted with a second attack of rather severe pulmonary hæmorrhage which the physical signs showed to proceed from the base of the left lung. On examining the heart it was found to present the pure funnel form of mitral stenosis with right ventricle, hypertrophy, &c. His pulse was observed to be remarkably tense with well-marked reflux through the palmar arch on compressing the vessel. Under treatment by saline aperients and a little mercury the hæmorrhage ceased, the pulse softened, and he returned to his former state and left the hospital. The heightened peripheral arterial resistance in this case clearly, by embarrassing the left ventricle and throwing back pressure upon the already difficult circulation in the lungs, caused the profuse hæmorrhage, whilst the hæmorrhage in turn probably saved him from anginal heart failure. A few months previously a young man was admitted into the ward with well-marked aortic regurgitant disease with characteristic pulse and throbbing of neck vessels. He had many attacks of vaso-motory angina, a common event in aortic regurgitation, one of which supervened whilst he was under examination. It was curious to note the absolute extinction of all the aortic characters in the pulse which became contracted to a small, hard pulsating thread, whilst as the patient sat forward leaning against a chair in great pain the bed shook with the violence of the cardiac beats and his neck and subclavian vessels could be seen pulsating with responsive violence. A dose of trinitrine quickly brought back the characteristic aortic features of the pulse and dissolved the painful scene. One could not observe the labouring beat of the heart, the strongly pulsating large vessels contrasted with the almost effaced small vessels, without appreciating the power of vaso-motor contraction to cause cramp or paralysis of a weak ventricle, yet there are physicians who still doubt the efficacy of vaso-motor spasm in the mechanism of angina. The initial treatment may be started with nitrite of amyl inhalation and the patient should always have such at hand. But the attack is commonly attended with such acute heart failure that the clinical features of high pressure pulse and labouring heart may be immediately lost. Undoubtedly the subcutaneous injection of pure ether, to which a minim of nitro-glycerine solution may be added if not already otherwise taken, is the best treatment in severe cases if caught at the right moment. The sense of prostration is more great and defined in these cases. Alcoholic stimulants, so much to be avoided in pure vaso-motor cases, are in these imperative. A full dose of brandy should be given in some hot drink. In those cases, and they are many, in which flatulent distension forms a marked feature of the attack, if it be not concerned in producing it, a carminative draught is of much service at the earliest stage. The heart is left in an exhausted or fatigued condition after the attack and there is a decided tendency to a series of several attacks. For this a mixture of strychnine or caffein may be prescribed with digitalis, so that 15 or 20 minims of liquor strychnia and 20 or 30 or 40 of tincture of digitalis are given in twenty-four hours, and the strychnia may be given subcutaneously in, of course, equivalent doses or the caffein in form of salicylate. It is probable that digitalis and strychnine influence the heart muscles before that of the vessels, but if the pulse become tightened, as it may be in exceptional cases, the digitalis must be lessened or its effect on the vessels moderated by the addition of ½ minim or 1 minim doses of nitro-glycerine to the prescription. There is another remedy which is a powerful restorative to the fatigued heart, and that is oxygen inhalation, which may be given for five or ten minutes every hour or two or three hours as may be required. These cases often come to us with a history of a recent attack and we have to consider what form of angina it has been, how to avert fresh seizures, and how to repair (if it may be) the failing heart which renders each attack so dangerous.

The presence or absence of heart disease must be rigorousl ascertained—(1) the soundness or otherwise of valve function; and (2) the presence or absence of enlargement, dilatation, or hypertrophy of the organ. It is important not to form too hasty a judgment and it is often impossible to come to a final diagnosis at or immediately after a seizure. In tumultuous action, whether from excitement or violent work, the locomotion of the heart is greatly increased and an inexperienced observer is apt to find great enlargement, displaced apex beat, &c., when none exists. On the other hand, one hears it sometimes maintained at inquests and the like that considerable organic disease of the heart may exist without any recognisable signs. I would venture to say that a careful investigation of the sounds and dimensions of the heart will always establish in such cases a displaced apex beat, an increase in the dimensions, or a recognisable alteration in the sounds of the heart. The converse is, however, frequently true—viz., that much alteration in the heart is conceived to be present when none exists. It requires great precision and diagnostic courage to prove a negative and in the presence of functional disturbance and discomfort and

anæmic bruits mistakes in diagnosis are very frequent and easily made. With mitral regurgitation of rheumatic origin high tension pulses do not often supervene, but mitral insufficiency is frequently a sequel to the dilatation of the heart consequent upon chronic high tension and secondary cardiovascular changes, and under these circumstances it is undoubtedly a safeguard against over-distension of the ventricle. I have seen cases in which the establishment of mitral incompetence has produced a cessation of anginal attacks which had previously occurred from time to time. In senile hearts mitral regurgitation is common and is not to be looked upon seriously, but rather as a favourable element in prognosis—a condition normal to the senile heart.

TACHYCARDIA, BRADYCARDIA, EXOPHTHALMIC GOITRE, &c.

I must frankly confess that neither reading nor a considerable experience of cases has enlightened me to anything approaching an exact appreciation of the mechanism of that persistent hurry of the heart's action which is known under the term—a term which responds well to our ignorance—tachycardia. The chief feature of the cases may be briefly enumerated:—1. A persistent hurry of pulse lasting for periods varying from hours to many weeks, during which the pulse is rapid, from 120 to 200 or more, regular, small, of sustained, I should say, rather than of high tension. 2. Intervals of severe palpitation attended with præcordial pain, notable distress, and more tumultuous, irregular action of the heart. 3. Although murmurs may be heard and the cardiac dulness may be broadened during attack in the intervals the dimensions and sounds of the heart may in the earlier stages be perfectly normal. 4. In the earlier stages and in the most typical cases the heart hurry has been observed to begin and to finish quite abruptly. This was so in Dr. R. P. Cotton's case and in Sir T. Watson's, in the latter the pulse suddenly changing from 216 to 72 with subsidence of all symptoms whilst that physician was still in the room. 5. So far as any exciting cause can be stated it has been for the most part mental shock, mental or physical overstrain.

The above characteristics are sufficient to show, were demonstration needed, that the condition is a pure neurosis and that the neurosis must be either of the vagus or sympathetic cardiac centre seems fairly certain. It is inconceivable that a paralytic affection of the pneumogastric centre should be so persistent, should be attended with a regularity of rhythm so generally notable, and should be capable of such abrupt termination as is observed in some cases. The view of sympathetic excitement is perhaps better supported by other phenomena of sympathetic irritation, such as sweatings and flushings of the face. No auto-intoxicant can be recognised in most cases. It is worthy of remark, on the one hand, that many people, especially women, suffer from persistent hurry of heart, coming quite within the range of the lower degree of tachycardia, and on the other that there is nothing to distinguish simple tachycardia from that which is the constant symptom of exophthalmic goitre, the rhythm and quality of pulse being precisely the same. It is also to be remarked that there are cases which might be regarded as of a transitional kind, in which, with no enlargement of the thyroid and with no more than a slight beadiness of the eyes, there are present the characteristic hurry of circulation, cardiac murmurs, &c., and in other cases again these circulatory phenomena precede the thyroid enlargement. In the case of a woman, to which I have elsewhere referred,[2] there was observed, besides moderate but constant tachycardia and slightly prominent eyes, evidence of instability of another portion of the pneumogastric nerve in the occurrence of vomiting as an accessory to any, however slight, mental effort or anxiety, such as starting on a journey or to pay a call. This neurosis was apparently attributable to anxiety during the long illness of her mother. It lasted for two or three years and then the patient got well. That there is vaso-motor paralysis of the thyroid vessels in the pathology of the goitrous form of tachycardia is evident, but it would seem to me to be a local and collateral phenomenon, for there is no general evidence of vaso-motor inhibition, the pulse is generally rather small and hard, as one might expect with such rapid impulses of blood through the vessels calculated to maintain blood-pressure. For the present, then, the exact meaning of tachycardia must remain unsolved and we may associate it with some other clinical facts, such as persistent elevation of temperature and unexplained continued elevation of arterial tension, the morbid physiology of which is not yet apparent.

The theory of exophthalmic goitre maintained by Moebius, Johnston, Greenfield, Murray, and others, that it is due to an excessive formation and absorption of thyroid secretion and its action on the nerve centres in the medulla, is useful if only as a working hypothesis. This hypothesis has been suggestive of certain measures of treatment that have been devised for exophthalmic goitre, still more successfully for its opposite, myxœdema. It would appear to be at least proximately true, although probably some central medullary change precedes the thyroid phenomena and is responsible for them. Some regard the thyroid secretion as modified and having toxic effects. It is based upon certain very definite observations—viz.: 1. That no definite lesion of nerve centres has been found. 2. That the thyroid is the organ more obviously affected than any other. 3. That its structure is altered in the direction of hypertrophy and over-activity of function and possibly there may be some alteration in the quality of the secretion (Moebius, Murray, Jeffrey). 4. The symptoms tachycardia, nervous irritability, insomnia, and vibratile contraction of voluntary muscles are the reverse of the bradycardia, torpidity, and impaired reflexes characteristic of myxœdema, consequent upon atrophy or excision of the thyroid. 5. Whilst moderate doses of thyroid extract will cure or keep in abeyance the phenomena of myxœdema an overdose of the extract will produce symptoms resembling those of exophthalmic goitre. There has as yet been found no direct means of treating simple tachycardia successfully. The digitalis class of drugs are useless in this as in almost all cardiac neuroses except—and the exception is important—in the treatment of the heart fatigue which sooner or later ensues as a consequence of the functional strain upon the organ. Tachycardia in its various grades is, however, often but a symptom, a prominent expression of a neuropathic state which requires to be approached for treatment from many sides.

In exophthalmic goitre, again, having made the diagnosis, the physician has to deliver himself of the somewhat magisterial sentence, "Imprisonment for six months and under surveillance for from two to five years." A careful and resourceful observance of this sentence is the only means of radically dealing with this distressing complaint. It would be astonishing that a sudden shock could produce a functional disorder that required such prolonged care did we not know that in all cases the condition is one long prepared for. In some cases a prolonged anxiety or mental strain will account for the illness, in others there is apparently a perverted physiology such as a premature menopause from removal of the ovaries. In other cases again the cause is inscrutable, but in all cases the fundamental treatment by physical and mental rest is essential. The rest for the first six months should be absolute on bed, sofa, or on a couch in the open air, with the utmost avoidance of all excitement and mental fatigue. The patient can then be promoted to bath-chair exercise, quiet walking and driving, or more scientifically graduated exercises, and in the course of time recovers. The general well-being of the patient can be maintained and the more distressing local and general symptoms relieved or removed by cold applications to the throat, sedatives of the bromide and valerian order, arsenical and sometimes iron tonics; digitalis and the like drugs may be given on the appearance of heart fatigue, indicated by the signs of dilatation and a pulse irregular in time and force. In the treatment of the tachycardia, apart from heart strain, digitalis is of little value. The use of thymus extract is in my experience of some value in diminishing the rapidity of the pulse; the galvanic current has been found useful in some cases. Theoretically the Nauheim brine baths should be useful, but practically I have seen no good from them—at least, in the more acute stages. The treatment of constipation and proper dietetic support are all matters of great importance under the enforced quietude of the patient. Operative treatment by partial extirpation of the thyroid gland has been rather extensively tried as has also section or partial resection of the sympathetic nerve in the neck. It must be remembered that any surgical operation will in a certain proportion of instances, in some manner unknown, modify, perhaps even cure, a pure neurosis. Mr. Treves has recently given some instructive illustrations of the truth of this statement, as

[2] Discussion on Functional Diseases of the Heart, Bristol, 1894.

regards abdominal neurosis, in a paper recently read before the Medical Society of London.[3] The partial removal of the thyroid gland in the acute stage of the disease is attended with very considerable danger and only very inadequate success. The best cases were those of Mr. Paul of Liverpool, but in six cases recorded by him[4] all except one were of more than two years' standing. Abadie and Faure[5] have had successes from section or ablation of the cervical sympathetic, but of Faure's three cases one was of twelve years' standing and in the others the duration is not stated. Doubtless the section of the sympathetic will slow the heart, but it has not yet been satisfactorily shown to influence the disease, and one would regard with some misgivings the future of a heart deprived of due sympathetic innervation, whilst it is clinically remarkable how well the heart comes out of the long struggle but little damaged when the patient has been carefully steered through by judicious handling. It sometimes happens that a disfiguring enlargement or a more serious distortion of the thyroid remains after the tachycardial symptoms have subsided and in one instance I have seen this condition dealt with very successfully by removal. I can but repeat that in our present knowledge of pathology and therapeutics bearing upon tachycardial conditions, including exophthalmic goitre, all remedial measures, however valuable some of them may be on proper occasions and at proper times, are absolutely futile unless they be subordinated to the essential treatment by graduated rest and isolation from all worry, fatigue, and excitement.

Of the opposite more rare form of cardiac neurosis, bradycardia, I need not say much, for the cases require but little treatment. One form is that which sometimes follows upon the rapid heart of exophthalmic goitre. I have recently had a remarkable example of this in my ward at the Middlesex Hospital. The patient was a woman, aged sixty years, who twenty years ago was operated upon by Dr. Galabin at Guy's Hospital for ovarian disease and both ovaries were removed. She almost immediately became the subject of acute Graves's disease. Ten years later she came under the observation of Dr. Pringle as an out-patient at the Middlesex Hospital still presenting all the symptoms of active exophthalmic goitre, proptosis, enlarged and pulsatile thyroid, a pulse of 136, agitations, tremors, sweatings, &c. She could not come into the hospital but continued her attendance, coming periodically from the east side of London for many years, in the course of which, chiefly under small doses of aconite, belladonna, and bromide, her thyroid gradually dwindled to an atrophic state, her pulse slowed to 60, and her manner changed from one of excitement and nervous agitation to a quiescent, almost an apathetic, demeanour. She still preserved her proptosis which she has at the present time, and at no time did Dr. Pringle or Dr. Pasteur, under whom she had more recently been as out-patient, regard her case as presenting the distinct signs of myxœdema. She had no albuminuria, but latterly her legs became somewhat œdematous. Her heart has slowed down to 45 and 30, there has been for some time a basic systolic murmur, and the left ventricle is decidedly hypertrophied and somewhat dilated. The signs are rather those of degenerative roughening, however, than of constriction of the aorta, for the pulse is of fairly full volume and regular, although very slow. After a few weeks' rest in bed and some strychnine tonic she has gone to the convalescent home. This seems to be a case analogous with regard to the myxœdemic state to those cases of tachycardia I have spoken of as not being distinctly associated with Graves's malady and yet approximating to it. Bradycardia is very uncommonly associated with well-marked myxœdema and may continue notwithstanding the disease has been cured or held in check by thyroid treatment. I have seen it in epileptics, in which case the rhythm is not only slow but generally irregular. As a temporary condition bradycardia is not infrequently met with as a sequel to influenza and also in association with the stage of depressed temperature that frequently follows upon other fevers. In the influenzal cases that I have seen it has been associated with a very high density of urine with great surcharge of urea, as though there had been some previous accumulation, the urine becoming solid with crystals on the addition of cold nitric acid. Spurious anguinal seizures are sometimes observed under these circumstances. I have never known such to prove fatal, although of course in the presence of any previous heart disease they might readily prove so. Chronic high arterial tension is generally associated with a slow, sometimes a very slow, pulse, whereas in acutely raised tension the heart's action is, as I have pointed out, generally quickened. In chronic bradycardia, a condition that tends to remain permanent and does not necessarily shorten life, an occasional twenty-four hours' rest in bed should be enjoined and for mental work the recumbent posture should be preferred. In cases of a more temporary kind the combination of strychnine with an alkali or iodide of potassium (the two drugs being kept in separate bottles and only mixed at the time of taking) is a very useful one. Caffein is also very useful, especially where the urine is scanty. A five minutes' whiff of oxygen three or four times in the twenty-four hours is a valuable cardiac stimulant. In cases of myxœdema of course thyroid extract will be given, but it is not wise to push it to the production of any excitement of circulation.

[3] THE LANCET, March 5th, 1898.
[4] Brit. Med. Jour., vol. ii., p. 6, 1897. [5] Progrès Médical, 1897.

The Goulstonian Lectures:

OBSERVATIONS ON THE PATHOLOGY OF THE KIDNEYS.

Delivered before the Royal College of Physicians of London on March 15th, 17th, and 22nd, 1898,

BY JOHN ROSE BRADFORD, M.D., D.Sc. LOND., F.R.S.,

FELLOW OF THE COLLEGE; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN UNIVERSITY COLLEGE; PROFESSOR SUPERINTENDENT OF THE BROWN INSTITUTION.

(*From the Laboratory of the Brown Institution.*)

LECTURE II.[1]

Delivered on March 17th.

MR. PRESIDENT AND FELLOWS,—In my last lecture I detailed at some length the results following partial nephrectomies (of varying degrees of severity) both on the composition of the urine and on the general metabolism of the body, and I trust that I showed that whereas all partial nephrectomies increased the flow of urinary water only the more severe ones increased the excretion and production of urea. We will now consider some of the results following complete double nephrectomy.

Experimentally the phenomena following the cessation of the renal functions may be studied by three different methods of procedure: (1) ligature of the renal arteries; (2) complete removal of the kidneys; and (3) the ligature of the ureters. The first method is on the whole unsuitable, since there is always a certain amount of doubt as to the extent of the collateral blood supply, and therefore in all my observations either both kidneys were removed or both ureters ligatured. When the kidneys were removed this was done in two operations in order to minimise the effect of shock, &c., and this was more especially done in order that an accurate comparison might be made between the effects of double nephrectomy on the one hand, and the effect of double ligature of the ureters on the other. The ligature of both ureters from an operative point of view is a trivial procedure, especially if they are both ligatured through an incision near the pubes. On the other hand, the removal of both kidneys at once, whether through one incision or by two lumbar incisions, is a very severe operation and thus it is misleading to compare the immediate effects of the two proceedings. The removal of one kidney in the dog is an operation which does not cause much shock and with due care hæmorrhage may be avoided. Even when the second nephrectomy is performed and the only kidney present is removed it is astonishing to see the small amount of shock that is produced. The animal is in no way collapsed and immediately after recovery from the anæsthetic may run about and behave very much like a normal animal, so that, provided the kidneys be removed like this, in two stages, there is no objection to contrasting

[1] Lecture I. was published in THE LANCET of March 19th, 1898.

the effects following the operation with those seen after ligature of both ureters.

In all the experiments on this question care was taken that full antiseptic precautions were used and in but one case was there any peritonitis either local or general. This is a point of very great importance and it is not improbable that many of the symptoms described formerly as following complete nephrectomy were really dependent upon the presence of septic peritonitis and not upon the absence of the kidneys.

The duration of life in dogs after complete nephrectomy carried out, as above described, in two stages is usually from three to five days, the animals in no case living beyond the fifth day and more usually dying on the fourth day. During the first two days very little amiss is to be noted about the animal except that the appetite is poor and that after the first day all food is liable to be refused. Muscular weakness begins to show itself on the second day, is well marked on the third day, and progresses steadily, but the nephrectomised animal is usually able to run about even on the third and perhaps on the fourth day. Thirst is sometimes present, but not as a rule to a marked extent. Wasting is very marked and progressive; for instance, one dog weighing six kilogrammes lost three-quarters of a kilogramme in from three to five days. The most characteristic feature apart from the weakness and wasting is, however, the course of the body temperature. At the time of the operation the rectal temperature is probably between 101° F. and 102° F. Within twenty-four hours of the operation it falls to 100°, on the second day after the operation the temperature had probably fallen to 99°, and on the third day to 98° or even to 97°. The fall is a continuous and progressive one and the animal remains active and lively until the temperature reaches from 98° to 97°. When the temperature falls to 96° the animal is really in a moribund condition although it may reach 95° before death actually occurs. The course of the temperature chart is the best indication of the probable duration of life. These are the most prominent symptoms seen after double nephrectomy and it is most important to bear in mind that certainly for three days and sometimes for longer the animal not only remains conscious but is active and lively and able to run about. As death approaches the weakness increases and there may be slight drowsiness, but this is never a prominent symptom, and personally I have never seen in nephrectomised dogs anything approaching to coma. Vomiting is also not a conspicuous symptom and in this my experience is contrary to that of the older observers and I cannot help thinking that the vomiting observed and made so much of by Bernard and others was really due to septic complications such as peritonitis. Vomiting, as just mentioned, is not a conspicuous symptom, and sometimes it is completely absent. In others it is present towards the end after the third day. Convulsions I have never seen, and that very constant uræmic symptom, dyspnœa, is also not conspicuous. Slight diarrhœa may be present. It will be seen from the above sketch of the symptoms following complete double nephrectomy that they only very distantly resemble the clinical picture of acute uræmia or at any rate of the acute uræmia seen in Bright's disease.

The results following the ligature of both ureters are very similar if not identical with those seen after complete nephrectomy, and I have been quite unable as yet to differentiate in any way between the symptoms produced by those two procedures. The duration of life after ligature of both ureters was if anything rather shorter than after complete nephrectomy, but this may have been due, although improbably, to both ureters having been tied at once. The animals usually died in from three to four, instead of from three to five days, otherwise the symptoms were practically identical. Vomiting was observed in one case especially after drinking, and in this case some local peritonitis was found, the ureters having been ligatured by two separate incisions in the lumbar region. The vomited fluid yielded no gas by the hypobromite method, and I think it most probable that the vomiting arose from the peritonitis, as this was the only instance in the series where this symptom was at all marked.

The fact that whether the renal functions be abrogated by the complete removal of the kidneys or by ligature of both ureters the resulting symptoms are practically identical is, I think, a factor of some importance with regard to the nature of uræmia. Ligature of the ureter experimentally invariably leads to the production of hydronephrosis, and in no case was the obstruction of the ureter followed by that complete suppression that has been observed in man after complete obstruction of the ureter. Inasmuch as the ligature of the ureter is always followed by hydronephrosis it might be argued that the results following this operation ought not to be similar to those seen after complete double nephrectomy. That this is so, however, can be shown not only by the facts already detailed but also by the fact that after the removal of a large portion of one kidney the disturbance of nutrition and the alteration in the urine described in my last lecture are seen to follow equally well whether (*a*) the opposite kidney be excised or (*b*) whether the ureter of this kidney be tied. Not only are the same effects produced but the duration of life with the fragment of one kidney is in no way prolonged by the fact that the ureter of the opposite kidney is tied instead of that kidney being removed. A further and perhaps even more conclusive proof of the same fact is the following: ligature of the ureter causes hydronephrosis, if after the production of this the ureter be cut down upon and opened and the hydronephrosis drained the kidney returns to its former shape but not to its former size. It is to the eye apparently a normal but small kidney. On microscopic examination such a kidney shows that the epithelium of the tubules has undergone a peculiar change, the cells shrinking and losing their granules and becoming glass-like in appearance; the nuclei, however, stain, although the protoplasm of the cells is quite clear. These appearances suggest that these are resting cells not capable of performing their usual functions. Such a kidney secretes a clear acid fluid containing little if any urea. Although it secretes such a fluid comparatively freely, such a kidney is, however, quite useless to the economy, and if the opposite healthy kidney be removed, all the phenomena characteristic of double complete nephrectomy are seen. This experiment shows two things—in the first place that ligature of the ureter permanently damages the epithelial cell structures of the kidney, for these are more affected than the glomeruli (and there is no overgrowth of fibrous tissue), and in the second place it affords another demonstration that the essential portion of the kidney is the epithelium lining the convoluted tubules. This experiment is in striking contrast to those described in the first lecture, where a small fragment of normal kidney was shown to be capable of maintaining the renal functions for an indefinite period. An entire kidney that has been exposed for even a short time—i.e., fourteen to twenty-one days—to the effects of the complete obstruction of the ureter with consequent hydronephrosis is unable when that obstruction is removed by draining the distended ureter to perform renal functions that are of any avail in prolonging life. Such a kidney is practically useless to the animal, although, as mentioned above, it is able to secrete an acid, clear liquid. It is probable that this is a glomerular secretion, modified it may be by the amount of damage that has been inflicted on the glomerulus by the increased pressure that has been produced in the glomerular chamber by the ligature of the ureter. At any rate, the ligature of the ureter leads to much more pronounced and permanent lesions in the epithelium of the tubules than it does in the glomeruli, and it seems to me that by this method of tying the ureter and subsequently draining the hydronephrosis so produced we may be able to differentiate in the mammal the functions of the glomerular chamber from those of the convoluted tubules. I have with this object in view some observations in progress at the present time. As ligature of the ureter causes these changes in the epithelial structures of the kidney very rapidly it is not very surprising that ligatures of the ureters and removal of both kidneys should produce practically identical effects. This fact is an argument against the existence of an internal renal secretion, since in other cases where glands have an external and an internal secretion the ligature of the excretory duct does not produce the effect seen after the removal of the gland. This is undoubtedly the case with the pancreas and also with the liver, since in the latter case it is fair to look upon the glycogenic function of the liver as an internal secretion of a kind, and the ligature of the bile duct does not materially interfere as far as is known with the other and metabolic functions of the liver. Although it may be argued that the ligature of the ureter very soon destroys the activity of the cells of the convoluted tubules, yet the production of the hydronephrosis and the fairly free secretion that continues after

draining the distended ureter show that the secretory activity of the glomeruli at any rate persists, so that it cannot be said that ligature of the ureters is theoretically equivalent to the removal of the kidney. Some of the views held on the nature of the different forms of uræmia have been based on the idea that the results following complete nephrectomy and those following ligature of the ureters were different, and this, I think, is untenable from an experimental point of view, and I hope to adduce evidence later that it is equally untenable in the human subject.

After ligature of both ureters and after double nephrectomy there is of necessity a great accumulation of nitrogenous extractive matters in the blood and tissues and, as mentioned above, the increase in the muscles is not only very great but, unlike that in the blood, it is not confined to the nitrogenous extractives, such as urea, that are soluble in absolute alcohol, but those like creatin (insoluble in absolute alcohol) are also increased. The increase of urea in the blood after double nephrectomy or after ligature of both ureters may amount to some twenty times the normal 0·3 per cent., and even more is by no means exceptional. This same great increase is seen in the muscles, where normally there is no urea, the small quantities detected by ordinary procedures being in all probability dependent upon contamination with blood. The amount of other extractives in muscles after nephrectomy may be nearly trebled, and seeing that normally there is as much as 0·2 per cent. of creatin this means that very large quantities of creatin and such like substances accumulate in the muscles after double nephrectomy. Similar large quantities of these extractives accumulate in the liver and brain. I have not been able to satisfy myself that there is any essential difference in these results whether the kidneys have been removed or the ureters tied.

The quantities of extractives in the blood are so large that the question naturally presents itself, and more especially in the light of the experiments on partial nephrectomy detailed in my first lecture, whether these quantities can be accounted for on the hypothesis that they are simply the products that cannot be excreted of a normal metabolism. If the views advanced in the first lecture are correct it is clear that after complete nephrectomy as after partial nephrectomy there should be increased disintegration of proteid material leading to the production of nitrogenous extractives in excessive amount. In order to test this theory experiments were performed to determine the distribution of urea in the blood and tissues after its intravenous injections in large quantities, the ureters being ligatured a few minutes before the urea was injected into the jugular vein. The animals were anæsthetised with chloroform and morphia and killed by bleeding at periods varying from a few minutes to an hour and a half after the injection. The distribution of urea in the blood and tissues was very similar to that seen after partial or double nephrectomy—that is to say, the muscles contained a greater percentage than the liver—but the very large quantities seen in the muscles after double nephrectomy were not seen after the injection of urea unless huge quantities were injected. Further, as the amount of urea normally excreted by the dogs before nephrectomy could be readily determined and the duration of life after the complete nephrectomy was known it was quite possible to calculate how much urea the nephrectomised dog should have produced but was unable to excrete owing to the absence of the kidneys. This quantity of urea was then injected into a dog of the same weight as the nephrectomised animal and the results of the analysis of the tissues were compared in the two cases. In all the cases, four in number, where this was done the amounts of urea, &c., as determined in the nephrectomised animal were greater than in the control animal which had received the amount of urea that theoretically should have been found in the nephrectomised animal. In these observations the other extractives were neglected but, as pointed out above, after nephrectomy these are also increased, so that I think there is clear evidence that after complete double nephrectomy the amounts of nitrogenous extractives in the blood and tissues are greater than can be accounted for on any hypothesis of simple retention. I think that the results following double nephrectomy are quite in accordance with those described above as seen after severe partial nephrectomy (removals of three-quarters of the total kidney weight) and that we must admit that whether the kidney be entirely removed or greatly diminished in amount in both cases there is a sudden and great disintegration of the proteid tissues of the body leading to the production of this large excess of nitrogenous extractives. After double nephrectomy practically no food is eaten and there is rapid and great wasting, so that these extractives have a tissue origin and, as insisted on above, the same is the case after the more severe partial nephrectomies.

I have described at some length the results obtained by experimentally investigating the effects following the operations of nephrectomy partial and complete. Now I propose to consider shortly some results obtained clinically by the investigation of cases of chronic renal disease, more especially with reference to the influence of this disease on the formation and the excretion of urea. Speaking broadly, the tendency of chronic renal disease is to cause a diminution in the excretion of urea, or at least this is the common teaching on the subject, and no doubt it is to a great extent true, but when this diminished excretion of urea is referred entirely to a supposed incapacity of the damaged kidney to excrete such bodies the basis of this view is not so sound. It is irrational to expect a patient suffering from chronic renal disease to excrete quantities of urea comparable to the normal for the following reasons: the appetite is poor and frequently a considerable amount of what food is taken is rejected by vomiting, diarrhœa is also frequently present, and all these factors will seriously diminish the amount of proteid available for disintegration into urea. Albuminuria is often present and frequently is excessive in amount, and perhaps this loss is greatest where it is not always suspected—namely, in persons with chronic renal disease passing a considerable quantity of urine with a moderate or even a low percentage, such as a third or a quarter, of albumin. The greatest losses of albumin do not occur in cases where the percentage amount of albumin is highest, since in such cases the quantity of urine passed is usually greatly diminished. A daily loss of 20 grammes of dry proteid is by no means exceptional in renal disease and in some cases the amount rises to as much as 40 grammes. Lastly, in dropsical patients a considerable quantity of urea and other extractives is retained in the dropsical effusions. All these causes operate in tending to diminish the amount of urea that can be excreted by the kidneys, and it is most misleading to compare the urea excretion of such a patient with the normal text-book amount of 30 grammes per diem excreted by a healthy person on a diet sufficient to maintain the body weight and to argue that an excretion of 20 grammes per diem or less is dependent entirely and directly upon the renal lesion. In many cases of chronic renal disease quantities of urea not greatly below the normal amount may be excreted even at a time when the patient is very seriously ill and even in a very dangerous condition, and this remark applies more especially to the cases where dropsy is absent. It is more especially true in the cases of what is called the "contracted white kidney," a grave form of Bright's disease in which the quantity of urine is considerably increased and contains 1 or even 2 per cent. of albumin. No doubt in the cases of chronic Bright's disease associated with dropsy and also where cardiac lesions such as mitral disease are present the urea excretion undergoes a great diminution. Personally I consider that a better notion of the state of the kidney lesion can be formed by observing the quantity and specific gravity of the urine than by observations on the amount of urea. The latter are often misleading for the reasons mentioned above. The quantity of water excreted, particularly if it is controlled by other observations, gives most reliable and valuable information; copious dilute urine, if not due to the presence of waxy disease (by no means so common now), is a matter of grave significance not only as indicative of the probable presence of what is ordinarily spoken of as the granular kidney but also as indicating the existence of other destructive diseases of the renal tissue such as the so-called contracted white kidney, cystic kidneys, &c. It is customary to consider that the excretion of this dilute urine is dependent upon the heightened blood-pressure that is so often seen in these kidney diseases, but the character of the urine approximates very closely with that described above as occurring after partial and more especially after double partial nephrectomy. If this comparison be fair the quantity of dilute urine excreted may afford an idea of the extent of the destruction of renal tissue in disease, just as it does in the nephrectomy experiments, the greater the hydruria the less the available kidney substance. The comparison instituted between the experimental results and the results of disease is, however, fallacious ni one respect.

Whereas in both the quantity of kidney is diminished in the experimental case what renal tissue remains is healthy, whereas this is not so in most diseased conditions even when the incidence of the disease is not absolutely uniform. In cystic disease of the kidneys, however, for a time at any rate, the remaining kidney tissue is practically normal, and there is, I think, a fairly close parallel here between the results of disease and the phenomena of the laboratory. In both a dilute urine is excreted, in both the renal tissue is greatly diminished, and in neither do cardio-vascular changes necessarily ensue. If the amount of water excreted can be correlated to the amount of kidney tissue left and so the experimental facts and the clinical facts be brought into harmony this cannot be done with regard to the urea excretion. Although it is a very familiar fact that patients with renal disease, and more especially perhaps patients with the more insidious and chronic forms of renal disease, such as contracted white kidney, granular kidney, &c., suffer from great weakness and wasting and the body temperature is low, yet the one striking difference between the two sets of results clinically and experimentally lies undoubtedly in the fact that whereas the urea excretion is increased in the latter it is apparently not in the former. I believe this discrepancy is due to the fact that in renal diseases the epithelium of the tubules is diseased and unable to excrete urea freely and in this respect it resembles the kind of epithelium described above as produced by ligature of the ureter. It will be remembered that the atrophied kidney that has been produced by ligature of the ureter is quite unable to excrete urea and that the epithelium of the tubules of such a kidney is glass-like and devoid of all the granules and striations that are so characteristic of renal epithelium. The other most striking difference between the effects of disease and the results of experiment is that whereas complete suppression is quite a common clinical occurrence as a result of obstruction of an ureter, yet it is not possible to produce this condition in the laboratory.

Extractives in the blood and tissues in renal diseases.—I have examined the blood and tissues in a considerable number of cases of chronic renal disease fatal from uræmia and in addition to this I have made a few analyses of the blood and of the dropsical exudations in cases that were not uræmic at the time the analysis was made. In a few instances subsequent analyses were made in the same cases when death had occurred from uræmia. In addition there is a series of analyses in cases where complete and fatal suppression resulted from a variety of causes. In all cases the blood was received into an excess of absolute alcohol, this was evaporated, the residue dissolved in absolute alcohol, again evaporated, and extracted with water. The filtered watery extract was divided into two portions; in the one the amount of nitrogen liberated by the Dupré process (hypobromide of soda) was measured and in the other half the total nitrogen present was determined by the Kjeldhal process. In this way a control on the Dupré estimate was obtained. The blood was obtained usually within twelve hours of death; in some cases where venesection had been employed in the treatment of uræmia the blood was received fresh.

Five cases of complete suppression were examined. In three of these the suppression arose as the result of calculous obstruction. The first case was a remarkable one of double calculous anuria; in the other two the ureter of the only efficient kidney was blocked by a stone. The other two cases were patients in whom suppression resulted, in the one case apparently reflexly as the result of latent peritonitis set up by the perforation of a duodenal ulcer, and the fifth case was a very remarkable if not an unique one where endarteritis and thrombosis of all the small arteries of the kidney led to complete necrosis of the cortex of both kidneys and caused complete suppression of urine.[2]

All these patients presented clinically the phenomena described by Sir William Roberts as characteristic of calculous suppression—that is to say, that until shortly before death there were none of the most typical and characteristic phenomena of uræmia such as coma, convulsions, dyspnœa, &c. The following conclusions can be drawn from these cases. There is an enormous increase in the amount of urea in the blood and far greater than is usually supposed: thus 0·015 per cent. may probably be taken as a fair average for the amount of urea normally present. In Case 5, living nine days, there is approximately thirty times the normal amount present. Secondly, the increase is fairly proportionate to the duration of life; thirdly, patients at the time of death have very different amounts of urea in the blood, thus confirming the old views that

Table showing some Results observed in Five Cases of Complete Suppression of Urine.

No.	Percentage of urea in the blood.	Duration of life.	Cause of anuria.
1	0·15	Two days	Reflex from perforative peritonitis.
2	0·277	Five days	Calculous suppression.
3	0·324	Six days	Calculous suppression.
4	0·36	Seven days	Endarteritis and thrombosis of renal arteries.
5	0·44	Nine days	Calculous suppression.

in all probability death cannot be attributed to the mere excess of urea, although when the percentage in the blood and tissues reaches the higher amounts mentioned above there may be as much as eight or ten ounces of urea in the body.

I have only one analysis of a fatal case of acute Bright's disease with suppression and without dropsy and there the percentage of urea in the blood was 0·35, which is comparable in amount with the quantities seen in complete suppression. In another case of Bright's disease fatal from pneumonia and where uræmic fits were present there was 0·12 per cent. of urea. In another case acute Bright's disease was seen as a complication of diabetes mellitus and this is rather remarkable and a few details will be necessary. This was a case of a diabetic of some duration and acute Bright's disease supervened. The urine was loaded with albumin and blood and deposited that peculiar grumous sediment so characteristic of acute Bright's disease. Although the urine presented all these characteristics of acute Bright's disease and also in addition abundant casts, yet the quantity passed was considerable—e.g., 100 cc. I think this case peculiar and interesting in the fact that notwithstanding the very acute and fatal nephritis the presence of diabetes caused the excretion of a copious urine. The blood in this case contained 0·072 per cent. of urea—that is to say, a comparatively small increase; there was no dropsy. The amount is comparable to that found in another case of diabetes fatal from coma and where the kidneys were not seriously diseased and where some 0·096 per cent. of urea was present. In a third case of diabetes also fatal from coma the amount of urea in the blood was 0·06 per cent.

In chronic Bright's disease the amounts of urea found in the blood vary within wide limits even at the time of death and more especially according as to whether the dropsy was present or not and whether death resulted from uræmia or from some other complication. The blood, however, may contain an excess of urea at the time when the patient is apparently in good health. Thus a certain patient presented a mitral systolic murmur and a trace of albumin in the urine. The general health was quite good and she was up and about and attending to household duties. Fatal syncope occurred suddenly whilst at a meal and post mortem it was found that the cardiac lesion was secondary to unsuspected renal disease and the blood of this patient contained 0·08 per cent. of urea.

The amount of urea in ascitic and pleuritic fluids will also give a fair indication of the amount present in the blood. It is not exact, as for that purpose a comparison should be made between the ascitic and pleuritic fluids on the one hand and the blood plasma on the other. But for all practical purposes the analysis of the dropsical effusion of renal disease gives an approximate indication of the amount of urea in the blood, erring on the side of making the amount greater than it really is.

In a case of chronic Bright's disease fatal with general dropsy the ascitic fluid contained 0·039 per cent. of urea one month before death and 0·046 per cent. three weeks before death; at death the blood contained 0·1 per cent. In another case six weeks before death the pleuritic fluid contained 0·15 per cent. at the time when the patient was excreting 20 grammes of urea per diem on a diet of 2000 c.c.

[2] Published in detail in the forthcoming number of the Journal of Pathology.

of milk. This patient, however, died from uræmia and the percentage in the blood at death was 0·44 per cent. Two other cases of chronic Bright's disease, fatal and accompanied with general dropsy, showed that the blood at the time of death contained 0·16 per cent. and 0·07 per cent. of urea respectively. All these observations and others that I need not quote show that with chronic Bright's disease, with and without general dropsy, there is an increase of urea in the blood even when the patient is fairly well and that this increases at death, as would be expected, but the increase is not so great as that seen in suppression unless uræmia occurs.

It is, however, in uræmia that the greatest increase is found and the following statements are based on the analysis of the blood in twenty-five cases of fatal uræmia unaccompanied with dropsy. The highest percentage of urea in the blood was 0·5 per cent. This was observed twice. In one case the amount was 0·46 per cent., in nine other cases the amounts varied between 0·3 per cent. and 0·4 per cent., so that in half the cases investigated the percentage of urea in the blood was between 0·3 and 0·5. In all the other cases the quantity varied between 0·2 per cent. and 0·3 per cent. and in no case of chronic Bright's disease, fatal from uræmia and unaccompanied by dropsy or some inflammatory complication, did the percentage sink below 0·2 and, in fact, this smaller amount was only seen in two cases. The quantities of urea found in the cases of Bright's disease, fatal from uræmia, are comparable with the quantities found in the cases of complete suppression that lived approximately one week from the time of the onset of the suppression. There are, however, at least two points of difference between the two series of cases. In the suppression series there was always complete suppression of urine and this in my experience is uncommon in the acute anæmia complicating chronic renal disease unassociated with dropsy. In the second place, the duration of life after complete suppression was at least six days when the percentage of urea reached 0·3, whereas in acute uræmia life was not prolonged for more than from two to three days from the onset of acute symptoms in most cases. One case was exceptional and presented acute uræmic symptoms for more than a week and it is of sufficient interest to quote in detail. The patient was bled with great relief on account of the onset of uræmic symptoms on Feb. 25th and the average of three determinations of the amount of urea in the blood yielded 0·13 per cent. The venesection was followed by considerable improvement, but the next day the patient again became comatose and a second venesection was performed with very beneficial results. This second specimen of blood yielded 0·24 per cent. of urea. During these two days the urine was passed unconsciously and could not be collected. From Feb. 28th to March 3rd it could be collected in part and the daily average for these days was at least twelve grammes and certainly much more was passed as the patient passed a considerable quantity unconsciously and also some with the stools. The benefit of the venesection was temporary, the uræmic symptoms returned, and the patient died on March 3rd, and the blood contained 0·3 per cent. of urea. This case illustrates several points, and more especially shows the onset of uræmic symptoms when the percentage of urea in the blood was still low, and the further point that a very great increase in the amount of the extractives in the blood may take place whilst there is still a considerable excretion of urea, since it must be borne in mind that, in the first place, all the urea was not recovered, and, in the second place, that little or no food was taken, and hence it will be seen that the urea excretion in this case was by no means so small as it appears to be at first sight. This case was investigated more thoroughly than any other, but in another case where there was 0·38 per cent. of urea in the blood some 8 grammes of urea were recovered from the urine in the preceding twenty-four hours notwithstanding the loss of some urine and the presence of severe diarrhœa and persistent vomiting.

All these observations tend to the same conclusion, that in uræmia there is a very great excess of urea in the blood, even greater than in most cases of complete suppression, and there is not only not necessarily complete suppression of urine, but quantities of urea may be passed in the urine that are not very inadequate considering the condition of the patient.

We have as yet only considered the presence of extractives in the blood, but there is a similar, and in fact a greater, increase in the tissues, and, as in the experimental cases, this increase is especially marked in the muscles. In the muscles there is not only an increase of urea approximately equal in percentage amount to that seen in the blood, but in addition there is a corresponding or even greater increase in the other extractives belonging to what may be called the creatin group. These are not present to any great extent in the blood even in uræmia, but the excess in the muscles is very notable. I have been able to examine the blood in two cases of eclampsia and here the percentage of urea in one case was 0·06 per cent. and in the other 0·036 per cent., confirming former observations that in this malady there is a striking difference between the state of the blood and that found in uræmia. In one of the fatal cases of eclampsia it is of some interest that the urine was highly albuminous and contained considerable quantities of blood; in point of fact there was nephritis, but notwithstanding this the percentage of urea was but 0·036. Thus the greatest excess seen in eclampsia was only four times the normal.

The conclusions drawn from the examination of the blood and tissues in renal disease may be shortly summarised as follows: (1) in suppression there is a great increase in the nitrogenous extractives in the blood and tissues; (2) in acute uræmia without dropsy there may a be still greater increase; (3) in chronic renal disease fatal from other causes there is some increase, but not comparable with the above; (4) in renal disease even in apparent good health there is a certain small excess; and (5) in eclampsia the excess is trivial in amount.

ABSTRACT OF

A Clinical Lecture

ON

CASES ILLUSTRATING THE INFECTIVE ORIGIN OF INFANTILE PARALYSIS.

Delivered at the National Hospital for the Paralysed and Epileptic, Queen-square, on Feb. 8th, 1898,

BY THOMAS BUZZARD, M.D., F.R.C.P. LOND.,
PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—The two patients exhibited to-day are typical examples of acute anterior poliomyelitis. Their cases are both of comparatively recent date, the first having been attacked eleven weeks and the second nine months ago. In each the principal incidence of the disorder has been upon the lower extremities.

The patient first shown is a boy, aged fourteen years, who was admitted under my care a month ago suffering from paralysis of both lower extremities. From notes taken by Dr. Collier, resident medical officer, it appears that the boy's ordinary health had been good with the exception of three attacks of influenza, the last of which immediately preceded the paralysis. Seven weeks before admission (i.e., about eleven weeks ago) the patient was said to have had influenza. He felt sick, had headache and a stiff neck, with fever lasting three days. The highest temperature was 102° F., which declined next day to 101°. He got about again and went to school, but thinks he got a chill and the next day he stayed in bed feeling only slightly ill, but with some headache. Two days later, in the morning, he found he could not use the right leg and at the same time there was retention of urine and incontinence of fæces. There was no pain anywhere. After a week the trouble with the sphincters passed off. He thinks the legs were at their worst four days after power had begun to be lost, and after that they slightly improved. At the commencement of the illness he had some little aching in the arms. On examination it was found that the power of extending the elbow-joint was decidedly weak on both sides, and the erector spinæ and abdominal muscles were also wanting in strength, but no localised weakness could be picked out in them. Both lower limbs were much wasted; the feet were cold and somewhat cyanosed. He could not raise the right leg or extend or flex the right knee, and failed to resist passive flexion and extension of the knee. He can now do all this. Abduction and adduction of the right

limb were exceedingly weak. He could flex and extend the right ankle feebly. He could not raise the extended left leg off the bed (which he can now do), but could flex and extend the knee and could rotate, abduct, and adduct the hip on this side much more strongly than on the right. He could not then resist passive flexion and extension of the knee, but he is now able to do so. There was slight power for flexing and extending the ankle-joint, best on the left side, and this has also improved. There was great wasting (which still persists) of all the muscles below and including the glutæi, and especially of the anterior tibial group. Electrical examination in the upper limbs shows, perhaps, slight lowering of excitability to single induction shocks. Recovery here will be complete. In the lower limbs, as no reaction to induction shocks is obtained above the knee up to and including the glutæi, the prognosis is doubtful; but since all the muscles below the knee (except the small plantar muscles) react, although faintly, to the strongest induction shocks, restoration to health may be expected in them. All the muscles of the thighs react sluggishly and feebly to galvanism and K.C.C. is slightly greater than A.C.C. The calf muscles and anterior tibial group show A.C.C. > K.C.C., with the characteristic slow reaction. There is no sensory disturbance anywhere except a slight tenderness at the lower dorsal region. The right knee-jerk is absent; the left is just present, but much diminished. Examination of organs generally gives negative results.

The other patient is a male child, aged two and a half years, who was admitted under my care two months ago with both legs paralysed. In March of last year, having previously enjoyed good health, he had a sharp attack of pneumonia. After an illness which lasted four weeks he is said to have had "influenza." It seems that the patient was sick and very feverish and after a day or two it was found that he was paralysed "all over." After two or three days the arms began to recover but the legs remained paralysed. No other children were ill in the house at the time. On admission the condition was precisely that which is now observable, no change having taken place. There is some weakness in the lower part of the erector spinæ muscles. The lower extremities are cold and red, greatly wasted, almost absolutely flaccid, and altogether powerless except that there is slight movement in the intrinsic muscles of the toes on the left side, and the slightest movement of flexion in that hip. The only muscles in the lower limbs responding to the strongest induction shock are the intrinsic muscles of the left foot. Every group of muscles in either leg responds feebly to galvanism and K.C.C. is only slightly greater than A.C.C. The knee-jerks are absent. The outlook is bad. In this case again the symptoms are entirely confined to the motor side; there has been no affection of sensation. The diagnosis of anterior acute poliomyelitis is distinct.

[A sketch was here given of the symptomatology and morbid anatomy of the disease.]

The next cases are those of two sisters who were residing in the same house in September last when they were attacked with infantile paralysis within six days of each other. They were sent into the hospital under my care a few days ago by Dr. Colman and I am indebted to Dr. Collier for the following notes of their cases. The one was aged four and a half years; the family history was good; four other children were healthy. A sister was affected with a similar complaint six days after this one had been attacked. The patient's previous health had been good. She had had whooping-cough at Easter, 1897. On Sept. 12th, 1897, having previously been in excellent health, she was noticed to be poorly and complaining of headache. She was feverish and was put to bed. She did not vomit. She was treated for "influenza" by a medical man, who, it is said, did not see her. After five days she seemed better in herself but did not move the right leg properly. The paralysis became rapidly worse during the next ten days, the right leg becoming absolutely paralysed. The left foot also became paralysed and she was unable to sit up in bed or even to roll over. There was no pain or affection of the sphincters or loss of sensibility. Fifteen days after the onset she began to recover power in the left leg and back and was able to sit up a week later. In February last (five months after the attack) she began to walk with assistance. The right leg had not recovered any power. Of the six children in the family two only were affected, none of the others being in any way indisposed during or after the time when these two were ill. Two other children (strangers) living in a neighbouring street, who, as far as can be ascertained, had not been in contact with these, were taken ill in a similar way in the same week and were both paralysed in the legs. They have not, it is said, improved up to the present time. The patient is a well-nourished rosy-cheeked child. The special senses, cranial nerves and sensation are normal; the upper extremities and trunk are normal. There is double talipes equinus; also absolute flaccid paralysis below both knees, except for the slightest movement of the toes, and absolute flaccid paralysis of the right thigh with the exception of the adductors and glutæi which act feebly. There is great wasting of the palsied muscles. Faradaic excitability is practically absent in the affected muscles. Galvanic excitability is much lowered; A.C.C. = K.C.C. The knee-jerk is absent on the right side but just present on the left. She can just walk with assistance. The right leg is quite flail-like when she tries to use it.

The other child, aged two years and ten months, suffered from whooping-cough at Easter, 1897. On Sept. 18th, 1897, six days after her sister had been taken ill, she was noticed to be "poorly" and she limped on the left leg. Next day she was much worse and was feverish. She complained of pain all over her and the leg was weaker. The fever is said to have lasted a week, during which time she became paralysed in both legs and was unable to move herself in bed or to sit up. After a fortnight she improved greatly and was able to sit up. At no time was there affection of the sphincters or of sensation. Three months after the onset of this illness she had so far improved as to be able to walk, but since that time she has remained in about the same state. She is a healthy-looking, well-nourished child. The special senses, cranial nerves, and sensation are normal; the upper extremities and trunk muscles are normal. There is absolute flaccid paralysis and great wasting of the calf muscles; the anterior tibial and peroneal muscles are normal. Double talipes calcaneus is present. There is no faradaic reaction to the strongest tetanising current in the calf muscles. Galvanic excitability; A.C.C. > K.C.C. The knee-jerks are present and equal, but faint.

These have been typical attacks of acute anterior poliomyelitis, and in view of the circumstances it is impossible to doubt that they were due to some infection the nature of which, however, we are unable to specify.

It will have been observed that in certain of these cases the occurrence of paralysis was said to have been preceded by an attack of influenza. I cannot venture to say whether that was or was not the case, for we all know the difficulty of pronouncing an opinion on this point, and there is no doubt that the primary fever which usually precedes the loss of power in an attack of infantile paralysis is apt to be referred to some other cause. But in the first case there does seem ground for thinking that the attack was one of influenza, for after febrile movement with constitutional symptoms he had got about and gone to school for a day before he was again attacked with symptoms which were followed by the paralysis. Moreover, he had previously suffered from attacks of influenza. In the second case the child had been ill for four weeks with pneumonia, and the attack of fever and sickness which then took place may well have been symptomatic of the acute anterior poliomyelitis which led to his loss of power. But here again in the occurrence of pneumonia the evidence of a specific infection of some kind is, I think, fairly strong.

It is, however, when we come to read such histories as these by the light of other experience that we find reason to think that those of us who look upon this disease as of infective origin appear to be justified in our opinion. Let me refer to illustrative examples bearing upon this point.

A case of remarkable interest in this connexion has lately been in the hospital and I am greatly indebted to my colleague, Dr. Bastian, in whose practice it occurred, for the opportunity of bringing it before you. A single man, aged twenty-eight years, was admitted in October last with paralysis of both lower extremities. From notes taken by Dr. Collier it appears that in August, 1893, the patient when in good health was upset from a tricycle, and cut open his knee. He used moss from the roadside to stop the bleeding. The wound was afterwards dressed and some stitches were inserted; it suppurated. A week later he had a feverish attack, his temperature being 101° F., and there were pain and stiffness in the back of the neck. Two days later pain was felt in the back and at night he found difficulty in turning in bed. Early next morning he could not move his legs. On the third day the pain left him. The

legs were paralysed, but he could move the toes. The knee-jerks and plantar reflexes were absent. Sensation was not impaired. There was sphincter trouble from the commencement of the paralysis, but it passed off at the end of a week. By that time the right arm and the intercostal muscles were almost completely paralysed. The left arm was never affected. After a few days the right arm began to recover slowly. At no time in his illness was there any affection of sensation or "girdle" feeling, but for the first three weeks the lower extremities were hypersensitive. For a few days the legs were completely paralysed, but coincidently with the improvement in the arm he began to move his toes slightly. Three weeks after the onset the muscles of the lower extremities were flaccid and did not react to faradaism. After this the muscles of both legs and of the right arm commenced to waste and the feet "dropped." Improvement afterwards took place in the arm, but the legs had made no advance for three years. On admission he could only change the position of his legs by rotating the pelvis upon the trunk and letting them fall over from side to side. The grasp of the right hand was good and the movements and muscles of the arm appeared to be normal except the right triceps, which was markedly wasted, so that extension of the elbow could not be effected against even slight resistance and the excitability to faradaism was lowered. At the level of insertion of the deltoid the right arm measured one and a half inches less than the left. In the lower extremities (which were extremely wasted below the groins and iliac crests) the only movements present were the slightest power of contraction in the right calf and left toes, and an amount of voluntary contraction in the left adductor magnus which was insufficient to move the limb. There was some contracture in both hamstrings. There was no reaction to either galvanic or induced currents in any muscle of the lower extremities except the left adductor magnus, which showed diminished faradaic contractility, and to galvanism A.C.C. = K.C.C. slightly. Sensation was everywhere normal; the knee-jerks were absent. No improvement took place under treatment by massage, galvanic currents, sulphur, and brine baths, and he was discharged in December.

It would, of course, be wrong to infer from the circumstance of this attack of acute poliomyelitis following so closely upon the reception of a wound that there was any necessary connexion between the two events. It is very uncommon in my experience for this disease to be preceded by a wound. The sequence indeed is probably as exceptional as is the occurrence of tetanus without a preceding wound. But in neither instance can we exclude the possible occurrence of that which is at the same time allowed to be rare. It is when this case is taken in conjunction with others pointing to an infective origin of the disease that we recognise its contributory value however inconclusive it may be by itself.

The most important evidence of an infective origin of infantile paralysis is afforded by records of the occurrence of epidemics of the disease. At the meeting of the International Medical Congress in 1890 at Berlin Dr. O. Medin of Stockholm contributed a paper upon an Epidemic of Infantile Paralysis which he had witnessed and I quote from his account references to others which had preceded it. Dr. Bergenholtz in 1881 had observed an epidemic of 13 cases in Umea, a town of Sweden. Dr. Colmer[1] describes (but this apparently only by report) the occurrence of some 3 or 10 cases in a district of West Feliciana, U.S.A., in the course of three or four months. Dr. Cordier mentions 13 cases which had happened in June and July, 1885, in the neighbourhood of Lyons. The epidemic observed by Medin took place in 1887. In May there were 2 cases, in June there was 1 case, and in July there were 2 cases; all 5 being typical examples of anterior acute poliomyelitis. On Aug. 9th the disease assumed an epidemic character and between that date and Sept. 23rd 29 cases were observed, whilst in September, October, and November there were 9 further examples. In all, from May to November, 44 cases of infantile paralysis occurred, mostly in Stockholm and its vicinity. Three of the patients died. The disease generally affected little children who belonged to the labouring class and had previously been in good health. Some cases occurred in a higher class; 34 were under the age of six years. In the first stage there were fever, somnolence, sometimes vomiting or diarrhœa, restlessness, and pains in the body. The temperature rarely exceeded 39° C. Retention of urine was only transitory. There were convulsions in 2 cases. The febrile stage lasted usually from two to four days. The localisation of the paralysis was that commonly seen in anterior poliomyelitis but in 3 cases there was facial monoplegia and in 5 there was facial paralysis associated with poliomyelitis and polyneuritis.

Post-mortem examination of the fatal cases showed acute parenchymatous inflammation in the anterior horns of the cord with secondary degeneration of the association tracts in the antero-lateral columns and in the anterior nerve roots, in the nuclei of the hypoglossal, vagus, facial, and abducens oculi. In most cases the anterior horns were preferentially attacked but in some the peripheral nerves also and the cerebral cortex. Bacteria were sought for in preparations hardened in Müller's solution but were not found. I have quoted enough to show that these cases certainly belonged to the class of acute anterior poliomyelitis, although the lesions were not in all instances confined to the anterior horns of the cord.

The possibility of more remote portions of the cerebro-spinal axis being affected in this disease is confirmed in the story of another epidemic. In March, 1897, Dr. W. Pasteur brought before the Clinical Society an account of an epidemic of infantile paralysis occurring in children of the same family in a village in Hertfordshire in 1896. The attack was limited to a particular household. Influenza was not prevalent at the time or subsequently. The sanitary condition of the house and its surroundings was good. There were seven children in the family and all these (whose previous health had been good) were attacked in rapid succession within the space of ten days by an acute febrile disorder of from two to four days' duration, characterised mainly by headache and malaise. Within a few days of the onset paralytic symptoms supervened in three out of the seven children, whilst in two more there was some temporary disturbance of nervous equilibrium. One patient, a boy, aged eleven years, had primary fever followed on the fifth day by flaccid paralysis of the entire left upper limb. Another boy, aged nine years, had primary fever followed on the seventh day by right hemiplegia with rigidity and transient paralysis of the right side of the face and palate. A boy, aged eight years, and a girl, aged six years, had primary fever without paralysis. (I will ask you to note this as it bears upon some experience of my own to which I will refer later.) A girl, aged five years, had primary fever followed on the fifth day by paralysis with rigidity of the left lower limb. A boy, aged four years, had primary fever followed by general tremors lasting a few days. A girl, aged eighteen months, had primary fever followed by partial tremors lasting a few days and strabismus of short duration.

Referring to the original paper[2] for details it is evident that in this epidemic, as in the more extensive one described by Medin, some aberrant forms of the disorder were associated with typical examples of acute anterior poliomyelitis. I may mention that many years ago[3] I pointed out that facial paralysis in cases of acute anterior poliomyelitis would in all probability be due to extension of the disease process into the bulb. Facial paralysis is so rare a complication of infantile paralysis that the systematic works of that day were apt to exclude the symptom from the category of those indicative of the disease. "The reason why facial paralysis," I wrote, "is not more common in infantile paralysis I believe to be this: should the acute affection invade the bulb it is unlikely to spare the nuclei of nerves which are essential to life. It is evident that a disease which produces sudden and complete paralysis of limbs when it affects the anterior grey matter of the cord would cause rapid death if it attacked in a similar manner the nuclei of the vagus." I suggested that some cases of sudden and unexplained death in children might be due to such an occurrence and the fact not long afterwards appeared to be confirmed by the observation of Dr. Hale White[4] in a case which came under his notice. It is interesting to me to note that Dr. Medin writes: "In the two fatal cases which I myself observed the children died with symptoms of suddenly occurring dyspnœa and cyanosis. It is possible that these symptoms were conditionary upon an inflammatory degeneration of the vagal nucleus. The finding of such in two cases (after death) has shown that the vagal nucleus can be affected in infantile paralysis."

[1] American Journal of the Medical Sciences, 1843.

[2] Transactions of the Clinical Society of London, 1897.

[3] Clinical Lectures on Diseases of the Nervous System, 1882, p. 74.

[4] Transactions of the Pathological Society, vol. xxxiii., p. 15.

We know how unequal in severity may be the incidence of the disorder on various parts of the cerebro-spinal axis and it does not therefore appear unlikely that the cerebral cortex, the internal capsule, or the pons might be even exclusively affected. Experience, indeed, tends to show that the opinion expressed by Strümpell in 1884 is probably correct, and that the strong contrast which we used formerly to draw between the case of a child suffering from flaccid paralysis of one arm with that of another affected with infantile hemiplegia (non-traumatic) with contracture of the arm and heightened reflex is not always warranted, so far, at least, as the etiology of the affection is concerned. The principal or exclusive incidence of the disease upon an intracranial centre (instead of upon the anterior horn of the cord) causing polioencephalitis instead of poliomyelitis would account for the difference in the symptoms. In the former the descending degeneration in the crossed pyramidal tract is associated with contracture and increased reflex; in the latter the destruction of the large ganglionic cells in the anterior horn gives rise to flaccid paralysis and loss of reflex. The actual cause would appear to be the same; it is the part of the nervous system which happens to be attacked which occasions the difference in the symptoms. The facial paralysis which occurs in the cerebral cases may be due to lesion of the corresponding intracranial centre, and can be differentiated from that dependent upon lesion of the nucleus of the portio dura in the bulb by the result of electrical examination.

It is not necessary to dwell further now upon this subject and I have only referred to it from a wish to show that the occasional occurrence of anomalous examples in these two epidemics must not be thought to militate against the view that the disease in question was essentially that known to us as infantile paralysis (acute atrophic paralysis; acute anterior poliomyelitis).

It is important to remember that if we are right in thinking that this disease is due to a source of infection it may not unfrequently happen that more than one member of a family may be coincidentally affected although in so widely differing a degree of severity that the association escapes recognition. My experience would bear this out. In 1895 I saw a little boy affected with infantile paralysis whose attack had commenced with feverishness, headache, and drowsiness, followed by characteristic loss of power in the left arm, which continued when he was brought to me two months later. Two days before he had fallen ill his little sister suffered from feverishness, headache, and drowsiness, sleeping almost constantly for two days. She then recovered without paralytic symptoms showing themselves.

Only a few days ago a little girl was sent to me from a large provincial town affected with infantile paralysis limited to one lower limb. She was three and a half years old—the eldest of three children—the next being two years old, and the youngest nine months old. Her illness began on Aug. 9th, 1897, with headache, vomiting, and a smart feverish attack. This was on a Monday evening. The medical attendant thought she was going to have measles (it was in the next house), but no rash appeared. She had been out in the sun a good deal. She complained much, her medical attendant informed me, of general pain. Ultimately this settled into the left hip and leg. She screamed when these were touched. The hip and knee were strongly flexed. When the acute symptoms subsided the quadriceps extensor in the thigh and the extensor group in the leg were found to be paralysed. Her mother said that on the Tuesday she was much the same as on the Monday—vomiting, lolling about, complaining of headache all that day and night, very ill, crying out, restless, very hot, and delirious. On the Wednesday she was tender all over and lay like a log. Her left leg was drawn up, flexed at the hip and knee, and she always kept it like that. When her mother lifted her she had to support that leg. She could not bear it to be touched. For many days she could not be got to straighten it. She was in bed for a fortnight and then when lifted out she had always to be supported. No other limb so far as her mother could see had anything wrong with it at any time. I found the left leg greatly wasted, flaccid, and cold. There was no response in the muscles to induced currents. The knee-jerk was absent. The right leg was firm and well-developed, but in this also there was no knee-jerk. This child was taken ill on a Monday. The day previously the second child had been so poorly that her mother had sent for the medical attendant. She could not hold up her head, felt sick, was feverish, and could eat nothing; in fact, was affected with the same symptoms as the patient first described, though not so severely. Next day she appeared to have quite recovered and she did not suffer again. The third child was not ill at all. The mother, a very intelligent woman, said that a fortnight before this patient was taken ill a child of the same age living in an adjoining street had been attacked in precisely the same way and was paralysed in both legs. She also volunteered the statement that her nurse informed her at the time that there had been an epidemic of infantile paralysis "going about."

It will be conceded that the circumstances described afford a very strong presumption that infantile paralysis must be classed amongst infective diseases. But we are at present only on the threshold of the inquiry and need first of all to ascertain whether epidemics of the disease are more common than has been supposed and especially whether cases of primary fever, such as those I have described as occurring in my own experience, are at all frequently to be met with alongside of typical examples of the disease. The two cases of this kind mentioned by Dr. Pasteur (to which I have referred) have an interesting bearing on mine. I am in the habit of instructing my clinical clerks when a case of the kind comes into hospital to inquire of the friends whether there had been any illness in the house at the same time. But owing to the length of time that has frequently elapsed since the attack and also to the want of intelligence amongst those to whom the inquiry is addressed it is difficult to obtain satisfactory information. Febrile attacks of ephemeral character are constantly set down to "stomach" or "teething." It is to the family practitioner that we must look for giving us the most valuable aid as regards determining this point which lies at the base of the investigation.

Infantile paralysis is a peculiarly cruel disease. It rarely has the mercy to kill the patient, but usually condemns the victim to a prolonged existence embittered by more or less helplessness and deformity. Our present means of dealing with this disease are so trifling as scarcely to deserve serious mention. One cannot help indulging the hope that should its infective nature be established the day may not be very far distant when science will be able to introduce some effective method of combating the toxic agent which leads to such appalling results.

ON THE TREATMENT OF AFFECTIONS OF THE HEART AND THE CIRCULATION BY BATHS, EXERCISES, AND CLIMATE.[1]

BY A. ERNEST SANSOM, M.D., F.R.C.P. LOND.,
PHYSICIAN TO THE LONDON HOSPITAL; PRESIDENT OF THE MEDICAL SOCIETY OF LONDON.

I HAVE read with great interest and much instruction the report of the discussion which took place at the meeting of the British Balneological and Climatological Society on Jan. 20th. The subject was introduced in a truly scientific spirit by Dr. S. Hyde and subsequent speakers contributed much to the elucidation of the various problems. It is right and indeed inevitable that any measures and combinations of measures advocated for the treatment of a large and important class of diseases should be subjected to rigid scrutiny and the conditions of their employment defined with as much accuracy as possible. The questions submitted are not those concerning the therapeutical indications of a given health resort or the prescribed plan denoted by the name of a certain physician, however valuable the plan may be and however great our obligations to one who has with zeal, energy, and success promulgated his views. Our scope is wider. We recognise that not all our patients whose cases are just suitable for the treatment indicated are able to undertake a journey to a far-distant health resort, not all can obtain the services of skilled attendants; and yet it may be possible to put the principles of the treatment into action in their cases. Moreover, it may be that the methods themselves may be improved, for there is no finality in therapeutics.

My purpose is to place before you in a brief manner the

[1] A paper introducing an adjourned discussion at the British Balneological and Climatological Society on March 2nd, 1898.

views which I have been led to adopt from a review of the evidence which I have been able to obtain and of the cases which have come under mycare. I shall consider the therapeutic agencies mentioned in the title *seriatim*, trying as far as possible to eliminate sources of error so that we may arrive at a just appreciation of their value.

BATHS.

I have employed cool and cold baths in the treatment of cases of anæmia, including chlorosis, from my earliest days of practice. In many I have prescribed warm and cool spongings in sequence and often douches in addition. I have found—I dare say the observation will be considered a trite one—that the earliest effect of a hot bath or of free sponging with hot water is a quickening of the action of the heart, the pulse becoming soft and relaxed. The cardiac pulsations are, at any rate for a time, reduced in force. The patient bleeds into his own subcutaneous tissues. The enervating effect of a hot bath or a succession of hot baths is well known and needs no discussion. If after this preliminary warm bath or warm sponging a cool or cold effusion or sponging is practised a reversed picture is presented. The subcutaneous arterioles contract, the ventricular systoles are more complete and energetic, though the rate of pulsation is somewhat slowed. Moreover, the inciting of a respiratory reflex causes enhanced movement of blood through the cardiac chambers. A large number of cases, the great majority, of anæmia and chlorosis are accompanied by disorders of the circulation and even by molecular change in the muscular fibrillæ of the heart. Under the bath treatment I have mentioned it is my experience, as I am sure it is of many others, that great improvement has resulted. In some cases the cold bath is used without the preliminary warm, but it is needless to say that in some the shock then is too great.

In the treatment of like circulatory disorders special baths have been in use for a very long time. In Germany Schwalbach (Langenschwalbach) has been in repute for ages. Sir Francis Head in his "Bubbles from the Brünnens" described it about the year 1831. The water at a temperature of 50° F. is effervescent with carbonic acid. It is true that the mild ferruginous water swallowed is an integral part of the system, but a bath is prescribed about two hours after breakfast, its use being omitted every third or fourth day. At Schlangenbad in the neighbourhood (six miles from Wiesbaden) the springs are mildly alkaline, of a higher temperature (from 77° to 90°), containing two cubic inches of carbonic acid gas to the pint. They are known to calm the perturbations of a nervous heart and a rhapsodist says of them: "Vous sortez des eaux de Schlangenbad rajeuni comme un Phœnix—la jeunesse y devient plus belle, plus brillante, et l'âge y trouve une nouvelle vigueur." Beneke in 1859 and 1861 and Groedel in 1878 adduced evidence to show that the baths of Nauheim, near Frankfort, were beneficial by increasing the force of the heart and restoring compensation in cases of valvular disease. The late August Schott in 1880 and his brother Theodor Schott in 1887 subsequently extended the records of experience. Dr. Theodor Schott added a system of definite muscular exercises to the bath treatment and so initiated the combined system which we shall presently consider. In France Dr. Coulomb, of Bagnols-les-Bains, published some well-studied observations of cases of heart disease treated by the baths previously to the years 1883 and 1885, and in 1887 my friend Dr. L. Blanc produced an excellent memoir, translated into English, on Cardiac Affections of Rheumatic Origin Treated at the Thermal Baths of Aix-les-Bains (Savoy). The system of the douche-massage as practised at Aix-les-Bains, the water being of a temperature of from 90° to 95°, is well known and has been adopted at many of the bathing places in our own country. The cases recorded by Dr. Blanc included 73 of diseases of the mitral valve, 25 of those of the aortic valves, and 6 of pericarditis. The chemical constitution of the water at Aix-les-Bains has probably but little to do with its therapeutic effect as used externally in these cases. Its chief value lies in its soft, unctuous quality due for the most part to the presence of organic matter (barégine), which at the agreeably warm temperature at which it is used adapts it so admirably for the douche-massage.

The water of Nauheim is effervescent from the presence of carbonic acid gas. The gaseous character of the water is moderated according to the will of the physician from a mere slight effervescence to the foaming Strombad which is charged with the gas in large proportion. I cannot doubt that the effervescent character of the water employed has some therapeutic effect. It probably agreeably stimulates the sensory nerve-terminals of the skin, so it causes a cool water to feel more pleasantly warm. One seems to have an experience illustrating this point when one takes a bath in the sea at a time when the wind causes a foaming of the surf; the water seems to be warmer than it really is. Whether there is any really favourable reflex stimulation of the heart itself is an undetermined point. Though carbonic acid gas has some anæsthetic qualities it is probable that it is the mere air bubbles that do the work. Perhaps the pumping into the bath of a stream of ordinary air would serve all good purposes. Whether the effervescent waters as at Nauheim or the thermal soft waters as at Aix-les-Bains are to be preferred is also a matter of doubt. The skin stimulation in the former case is effected by the natural gas; in the latter by the massage-manipulation of the bath attendant, the movements of whose hand accompany the flow of water over the surface.

EXERCISES.

It is perhaps not generally known in what words our own great clinician Stokes first in 1854 called attention to the value of muscular exercise in the treatment of heart disease. Dr. Stokes, in his work on "Diseases of the Heart and the Aorta," published in Dublin in 1854, thus wrote: "The symptoms of debility of the heart are often removable by a regulated course of gymnastics or by pedestrian exercise, even in mountainous countries such as Switzerland or the highlands of Scotland or Ireland. We may often observe in such persons the occurrence of what is commonly known as 'getting the second wind'—that is to say, during the first period of the day the patient suffers from dyspnœa and palpitation to an extreme degree, but by persevering without over-exertion or after a short rest he can finish his day's work and even ascend high mountains with facility" (p. 357). This expression sounds the keynote of reaction against the plan adopted as a routine practice for a long series of years of keeping a patient who presented any sign of heart disease in conditions of the most complete muscular repose attainable. Supposing that active disease is not present and not progressing in the cardiac tissues a coddling policy whereby the heart muscle is kept at a minimum exercise of function is contrary to sound physiology and good practice. Ling, of Sweden, in the early part of the present century established his system of movement cure without, however, any special adaptation to cardiac patients. Saeterburg, of Stockholm, and Zander used gymnastics in the treatment of diseases of the heart and described their experiences, which appeared to be very favourable, in the period between 1862 and 1872. The only specially adapted machine in Zander's *répertoire* seems to have been the chest-expander whereby the trunk was extended and the capacity of the chest increased, the shoulders being drawn upwards and backwards. By its use it is said the walls of the chest recovered their elasticity, the patient was made to inspire deeply and so obtain full inflation of the lungs, and the effect in developing the chest of young persons was very remarkable. Oertel[2] adopted and extended the doctrine and practice already promulgated by Stokes. In August, 1885, August Schott, in the *Zeitschrift für Therapie*, wrote on the value of gymnastics for the diagnosis, prognosis, and treatment of heart diseases and subsequently Theodor Schott incorporated the treatment by muscular exercise with that of the baths of Nauheim as a system adopted and recommended by himself in cardiac therapeutics.[3] The plan of systematised muscular exercises adopted by Schott was precisely that initiated by Ling—viz., active use by the patient of his voluntary muscles, whilst an instructed attendant makes a certain resistance to each movement.

In my opinion there is no room for doubt that systematised muscular exercise is an agency of great value in the treatment of disorders of the circulatory mechanism. The mode in which each muscular movement effects its good purpose is no doubt very complex and there is room for much difference of opinion in the interpretation of the various observations. In my own opinion the effect of exercise of the voluntary muscles is an accumulation of blood in the vessels of supply of such muscles and a corresponding relief of congested areas. There is thus in some degree a deviation from the engorged veins and the right chambers of the heart.

[2] See Ziemssen's Cyclopædia, 1884.
[3] See THE LANCET, May 23rd, 1891, pp. 1143, et seq.

Dr. Lauder Brunton has said "the vessels which supply the muscles of the body are capable of such extension that when fully dilated they will allow the arterial blood to pour through them alone nearly as quickly as it usually does through the vessels of the skin, intestines, and muscles together."[4] Moreover, in the systematic muscular movements there are alternate contractions and relaxations, the former compressing the blood-vessels, the latter freeing their channels. Concurrently there are increased activities of the absorbents and reflex nerve-stimulations. In the movements of the trunk upon the lower extremities another set of factors comes into play. The alternate compression and relaxation of the abdominal wall must have a powerful effect upon the blood-supply to the abdominal viscera. The tendency must be in the main to cause the vessels of the splanchnic area to become dilated and so to coöperate with those of the voluntary muscles in relieving any turgescence of the right chambers of the heart. The latest doctrines derived from experimentation were placed by Dr. George Oliver before the British Balneological and Climatological Society at the previous meeting on Jan. 28th and I can only add the tribute of my thanks for his valuable observations. My own view accords with his that during muscular exercise there is a rapid fluid transfer through the capillary walls into the lymphatic and interstitial spaces. It seems to me—forgive me if I adopt the tone of a censor—that there is too much disposition in questions of cardiac pathology to ignore the great lymphatic circulation. One is apt to endeavour to explain morbid affections of the circulatory mechanism by mechanical deviations from the normal of the apparatus of the general circulation. Those who deal with baths and massage know how important the lymph circulation is and must be. If I read the facts aright it is a disturbance of the correlation between the general circulation and the lymph circulation that brings about dropsy. On the whole, I think, the tendency to danger of muscular exercises, even of overstrain, has been exaggerated. In regard to the healthy heart I know that Dr. Clifford Allbutt is of this opinion. He holds that the importance of physical effort as a factor in heart disease has been unduly pressed, the effects of physical stress upon the organ being promptly counteracted by equilibrating machinery. I believe that by gradual training the heart in many morbid conditions can be made to react even as a healthy heart. It is not mere physical strain that constitutes much of a danger, but the concurrence of physical with nervous overstrain. A patient with an enfeebled heart may take pleasurable exercise with advantage, but if he take such exercise at a time of mental anxiety or distress—if he hurry to catch a train, for example—then there may be serious and lasting consequences.

COMBINED EXERCISES AND BATHS.

I think it will best serve a useful purpose if I take a concrete case and suggest a simple plan of treatment in the first instance. Supposing that we have before us a patient convalescing from rheumatic fever and there are fears of some change produced by rheumatic endocarditis about the mitral orifice. The patient has convalesced sufficiently to move about his room. Ought we to put in force the combined treatment at once? I think so. Here is a simple method I have long adopted. In the morning, after a slight first breakfast of a rusk and cup of milk, a well-warmed dry Turkish towel is brought and the patient is instructed to rub the soles of his feet, his calves, and his thighs therewith, himself sitting by the side of the bed. Such friction may, of course, be aided by nurse or attendant. If tired the patient may rest in bed again. Next, whilst in the sitting position, he is instructed to rub with the towel his upper extremities, his chest and back. Then—and the plan can be carried out progressively from day to day—he is told to make certain movements with the arms, using the towel only or a light cane. The patient sitting or standing, the spine maintained straight, the towel is held taut in each hand, equidistant from the spine, transversely across the shoulders, the head in front; the arms are slowly elevated to their fullest extent and then brought back to the original position. So the upper thoracic muscles are brought into work. These movements are repeated several times but always short of the production of any dyspnœa or distress. Then, the hands holding the towel or stick symmetrically, the arms are moved slowly and deliberately to and fro. Later, the trunk muscles are exercised, the patient stooping as far as the knees and then elevating the arms. At a still later period the stooping may be as far as the ground with afterwards the erect position with arms extended. Here it may be objected that the danger of detachment of a vegetation to become an embolus presents itself. Such is a possible danger; but I think there is a greater peril of passive thrombi forming, on account of slowing of the circulation in the cardiac chambers, when a patient is kept with a torpid heart. To continue the exposition of this simple plan of treatment:—after an interval of repose spongings with warm water are practised or the patient is allowed for a few minutes to have a warm bath. Note that the feet should always be maintained warm. Lastly, there must be a sponging with cool water—at any rate, with water below the temperature of that of the warm bath. The addition of a little pine oil or sanitas to this is of advantage, causing as it does a slight stimulation of the surface and an agreeable glow. And now only follows the drying with warm towel and the envelopment in the bath gown.

The plan thus sketched out renders the services of a skilled attendant unnecessary and is applicable to patients of slender means. No one should stand between medical man and patient—not an attendant or gymnastic professor, however skilled. But by direction of the medical man the patient himself can perform the needful movements and carry out the plan as an habitual hygienic measure every day of his life. Of course, it does not exclude the adoption by those who can afford it of the more completely systematic plan for limited periods at a bath resort. When a patient does go to such a resort he should be placed under the care of a medical man of repute accustomed to the direction of the bath-system and the movement-treatment at the special locality. I emphatically endorse the words of Dr. Hyde condemning the administration of such treatment by persons who claim to be qualified but who are destitute of qualifications legal and moral.

ESTIMATION OF THERAPEUTIC EFFECTS.

We now come to a difficult part of the subject and I ask you to remember that I express merely my own personal views. The cases which are presented for treatment come for the most part under the following categories: (*a*) failing compensation in structural disease of the heart valves; (*b*) dilatation of the heart and failing myocardium, including fatty infiltration, without evidence of valvular disease; (*c*) cardio-arterial disease, especially associated with morbid conditions of the kidney; and (*d*) disorders of the heart of nervous origin.

CRITERIA AND FALLACIES.

I propose to consider these under the separate headings denoted by the evidence presented during the clinical examination of a patient.

I.—Subjective Symptoms and Signs External to the Heart Itself.

Criteria.—Dyspnœa, especially on exertion, the cardiac form. Œdema, from pretibial pitting to the most extensive œdemas of the dependent parts. Auscultatory evidence and signs of œdema of the basic portions of the lungs. These are signs which indicate the need of treatment, the failure of preceding methods of treatment; their amelioration or disappearance, the favourable influence of treatment; their persistence or intensification, the failure or inadequacy of treatment. Probably they are the most trustworthy of all the signs we have to deal with.

Fallacies.—It is to be remembered that all adverse signs may pass away without the adoption of the bath-plus-exercise treatment. It is common knowledge that all the symptoms of cardiac failure in valvular disease have in many cases passed away and the individual has been restored to fair health, estimated by himself as complete, when no treatment such as we are discussing has been put in force. The question then becomes a comparative one between this and other forms of treatment. Nervous complications may aggravate and even induce, without organic changes, all the signs and symptoms. Nervous complications are frequent; the complete induction from causes affecting the nervous system primarily of all the signs is rare, but such occurs in some cases of Graves's disease and allied affections.[5]

[4] Cf. Harveian Oration, THE LANCET, Oct. 20th, 1894, p. 895.

[5] Cf. Transactions of the Medical Society of London, vol. xiii., 1890, p. 481.

II. Physical Signs of Valvular Incompetence.

Criteria.—A murmur, systolic in time, is heard over the apex of the heart. I shall exclude on this occasion murmurs at the base, only observing that a systolic murmur over the aorta and its branches rarely indicates organic disease of the aortic valve unless a diastolic murmur accompanies it. A systolic murmur at the apex is generally held to indicate incompetence of the mitral valve; its appearance and continuance is frequently regarded as an unfavourable sign, its disappearance, though with some reservations, as a sign indicating that the issue of treatment has been favourable.

Fallacies.—A systolic murmur observed at or near the apex of the heart may be, and often is, of little or no morbid significance. If such murmur be localised in the near neighbourhood of the apex and not at the apex itself, if it vary with the process of respiration, if it become greatly modified according to the position of the patient at the time of auscultation—in some positions and at some phases of respiration disappearing altogether—it is probably one of Potain's cardio-pulmonary murmurs due to the movement of the heart upon the adjoining lung and is devoid of any hurtful significance. But the murmur may be strictly localised at the apex, may indicate to the most accurate observer mitral incompetence, and yet be independent of structural disease. This has been proved by the close observation of many cases. In such, according to my opinion, there is a persisting disturbance of the normal correlation between the muscle of the wall of the left ventricle and the papillary muscles whereby a slight but insignificant regurgitant stream is occasioned. The means of differentiating such a harmless murmur from one of serious organic defect is afforded by the observation of the second sound. If the second sound over the commencement of the aorta and at the apex of the heart is found to be well marked and that over the pulmonary artery (in the second and third left intercostal spaces close to the sternum) duly pronounced but not accentuated it may be inferred that any regurgitation through the mitral orifice is insignificant.

III.—Physical Evidence of Enlargement of the Heart.

Criteria.—It is known to all who have read the literature of the subject that the evidence deduced from records of the supposed outline of the heart before and after treatment has been regarded as testifying in a very important degree to the value of the Nauheim plan of treatment. The diminution of the area occupied by the heart, the supposed shrinkage of the organ, has been held to denote a favourable change towards the normal from a morbid dilatation. In some cases when subjective signs of amendment concur with a return to the normal of the position, size, and shape of the heart there can be no doubt of the correctness of the inference and the causal relation of treatment and favourable result is in the highest degree probable.

Fallacies, however, are numerous. *First fallacy.*—Whatever the mode of physical examination employed (inspection, palpation, percussion in various modes) the personal equation of the observer has to be taken into account. I thought that my own method of obtaining an outline by percussion afforded precise results. I have confirmed these again and again. My own house physicians and clinical clerks generally arrive at conclusions little differing from my own, but yet I have found that some very competent observers have in a given case produced outlines indicating the size and shape of the heart differing very widely from my own. I have been unable to detect any abnormality in a heart which has been described as greatly dilated. I have become almost distrustful of myself and I am forced to the conclusion that the unconscious cerebration of the observer may have something to do with the production of graphic records which are said to indicate with accuracy the outline of the heart. I must go further and state my opinion for just what it is worth—it is derived from the examination of a considerable number of outlines purporting to be those of the heart before and after the Nauheim treatment—that many are the results of a fallacious plan of physical examination and cannot be held to represent with any degree of accuracy the size and position of the heart. On this point my views are in accord with those of Dr. G. V. Poore, Sir William Broadbent, Dr. Herschell, and others. *Second fallacy.*—The heart varies in volume under so many different conditions that the inference that its diminution is the effect of any given plan of treatment is not strictly justifiable. Many observers have recorded their conclusions to the effect that the bulk of the heart in a given subject may greatly change under varying conditions within very brief periods of time. Many circumstances may induce such variations. The content and consequent bulk of the right auricle and ventricle must vary with the varying turgescence of the liver. Dr. Lauder Brunton has vividly shown what an elastic organ the liver is and how variable is the rate of flow of the blood through it.[6] A dilatation of the blood-vessels within the abdomen—i.e., in the splanchnic area—also may reduce the content and consequent bulk of the right auricle and ventricle when there is no obvious change in the volume of the liver. Another cause of reduction of the observed size of the right cavities is expansion of the lungs. There may be an apparent reduction of bulk owing to the increased resonance over the inflated air cells bordering on the heart and a real reduction as the content of the right chambers is reduced by so much as is due to the augmented volume of blood in the pulmonary tissue. Sir William Broadbent has said that "in a heart dilated from over-exertion the apex beat may often be felt to come in for half-an-inch towards the normal situation when the patient is simply made to walk two or three times across a room." Heitler has made observations from which he concludes that there are rhythmic diurnal variations in the volume of the heart, the pulse remaining unaffected by these.

In conditions of disease the apparent bulk of the heart as determined by the means of physical diagnosis may be temporarily increased by the congestion of the vessels of the pericardium as well as those of the coronary blood-supply and there may be fluid exudation into the spaces of the surrounding tissues. In cases of rheumatic valvular disease or rheumatic carditis (Sturges) when the patient has been at rest and when no special therapeutic means could be cited as disposing causes I have observed evidence of extraordinary variation of the bulk of the heart in the space of twenty-four hours.[7] Cases which I have observed have convinced me that from causes affecting the nervous system alone there may be extreme dilatation of the heart. I have recorded a case of a man, aged forty years, who manifested extreme dilatation of the heart, the pulse-rate being 200 per minute and the signs those which seemed to me to indicate neuritis of the vagus. The outline of the left ventricle on the ninth day of observation had receded to almost the normal and to the normal on the thirteenth day; the pulse-rate dropped from 200 to 58 and the respiration-rate from 50 to 34.[8] In a case of Graves's disease I observed dilatation of the right ventricle supervene with signs of tricuspid reflux. In other cases of Graves's disease I have traced dilatation of the left ventricle or of the whole heart when there has been no rheumatic antecedent or other evidence of disease affecting the heart. I am of opinion that disorders of the vagus and of the nerve-mechanism of the heart have been too much overlooked as causes of dilatation of the heart-chambers.

But supposing that in a case of structural disease of the heart—say, of mitral valve disease—a recession of dulness has been after a given treatment satisfactorily proved, must this be unhesitatingly regarded as a favourable sign? I think not. In a well-compensated mitral insufficiency a certain dilatation of the left ventricle accompanying hypertrophy is a necessity, for to adequately supply the aorta the ventricle content must be the normal *plus* so much as regurgitates at each systole into the auricle. This condition for perfect compensation was well pointed out by the late Dr. Herbert Davies and is enforced by Dr. Arthur Templer Davies. In how many cases of well-compensated valvular disease have I observed evidences of hypertrophy and dilatation and yet the patient without any special treatment has been in the enjoyment of his usual powers for very many years. One of my old friends reminded me of a woman under observation for more than thirty years who had such well-compensated mitral insufficiency. She died when over ninety years of age, but not from heart disease. These considerations are sufficient to show that the outlines of the heart purporting to demonstrate the curative effects of the Nauheim plan of treatment must not be accepted as conclusive evidence.

IV.—Sphygmographic Evidence.

I must say that personally I consider sphygmographic evidence of very little value in demonstrating the success

[6] Cf. Lettsomian Lectures on Disorders of Digestion, their Consequences and Treatment. London: Macmillan and Co. 1886. P. 94.

[7] International Clinics, vol. i., 1894, p. 12.

[8] Medical Press and Circular, June 3rd, 1896, p. 571.

of any treatment such as we have been discussing. The tracings may show a greater regularity of the pulsations and be *pro tanto* of some usefulness as records. As evidences of intra-arterial pressure I think they are untrustworthy. Indeed, in some cases of sphygmograms which have been published as affording evidence of the favourable results of the Nauheim treatment my own interpretations would be the precise opposite of those brought forward. In some cases it has been shown that sphygmograms supposed to demonstrate the favourable effects of such treatment have been taken by a nurse. Dr. C. W. Chapman has very properly condemned such proceedings and any inference from them.[9] I have been credibly informed that patients under treatment converse glibly as to the variations in size of their hearts, how that these have contracted two inches all round the area, or one inch or a finger's breadth, that they exhibit charts and diagrams supposed (vainly, I am sure) to indicate such recessions, and that they pore over and descant upon numbers of slips of sphygmograms signifying nothing in particular. If this be so it is time that those who have the real progress of scientific medicine at heart protest against such a travesty.

CLIMATE.

It is no small gain, no inconsiderable therapeutic advantage, for a patient to be removed from irksome surroundings or from the sickroom with its suggestions of suffering to a locality where blue sky, fresh air, and pleasant prospects combine with the necessary appliances for definite and satisfactory medical treatment. Whether a patient be sent to one of the health resorts of Great Britain, to Aix-les-Bains, or to Nauheim is a "question *de milieu*." I need not dwell on this subject, for it has received adequate recognition from Dr. Hyde and others. I need only record my opinion that climatic treatment combined with the judicious employment of the means under discussion may turn the scale towards recovery in many cases where home treatment, however conscientiously carried out, fails. But wherever such treatment be conducted let the mind as well as the body be directed in proper courses. Let no aberrations of the system adopted give rise to morbid introspection on the part of the patient. Let all the surroundings be those of hope and cheerfulness, but let none of them be such as shall make of the patient that most miserable of mortals—a cardiac hypochondriac.

Harley-street, W.

THE OPEN-AIR TREATMENT OF PHTHISIS IN ENGLAND.

BY F. W. BURTON-FANNING, M.D. CANTAB., M.R.C.P. LOND.,

PHYSICIAN TO THE NORFOLK AND NORWICH AND JENNY LIND HOSPITALS.

(Concluded from p. 716.)

MY object has been rather to study the effects of the treatment and to satisfy myself of its practicability in England than to secure a remarkable record. To achieve the latter purpose I should have chosen only the most promising cases and should have retained them for longer periods under treatment. I am satisfied that my results would be certainly improved on by continuing the treatment for an adequate time—a year or more if necessary. This, however, is only practicable in a sanatorium intended for the exclusive reception of phthisical patients. As they are I find that my results are distinctly better than those I have obtained by any other plan of treatment, but such a small number does not warrant an attempt at an exact comparison. It will be acknowledged that the satisfactory progress of my patients during three winters proves that the weather of even the colder months offers no bar to the successful carrying out of the treatment in England. In one case no sputum was obtainable for examination, but in the twenty-three other patients tubercle bacilli were found to be present, investigations being made at frequent intervals. I have not found any constant relationship to exist between the number of bacilli present and the phase of the disease. As some of the cases progressed they had less and less expectoration, and it was obvious to me that the tubercle bacilli increased in a specimen as the amount expectorated lessened. In other cases, however, the number of bacilli corresponded roughly with the patient's improvement. In two cases that at one time had numerous tubercle bacilli in the sputum their disappearance has been ascertained by repeated examinations. I am now trying to find out if the presence or absence of streptococci and staphylococci in the sputum can be connected with the action of the open-air treatment, especially with its effect on fever.

Before commenting on these results I would explain that though these patients faithfully observed directions as to constant rest in the open air they were manifestly at a disadvantage as compared with the inmates of a specially appointed sanatorium. The home being intended for general convalescents I could not, in spite of the indulgence of my colleagues and of the committee, keep most of the phthisical patients under treatment for a sufficiently long time. I should have liked a specially adapted diet for my patients, but this would have been resented by the other patients. A resident physician is considered essential for the satisfactory working of a sanatorium, but in the intervals of my visits, which were paid every one or two weeks, I relied on the coöperation of the matron, to whom I gladly take this opportunity of expressing my indebtedness for the painstaking manner in which she supervised the treatment and recorded the patients' temperatures, weights, &c. The efficacy of this treatment is in my opinion more firmly established by the improvement that took place in *all* the patients than by the cure that was effected in a few. I take its effect on the fever to be the most crucial test of the efficacy of this plan of treating phthisis. In all the febrile cases except one the adoption of the open-air life was followed by decline of fever. In one case 244 days elapsed before it fell permanently, in another 128 days, while in the remainder from 21 to 68 days were passed before a normal evening temperature was maintained. In more severe cases, when the general gravity of the patient's condition precluded the adoption of the open-air treatment in its entirety, I have had them placed on a balcony for a certain number of hours every fine day and have obtained a reduction of one or two degrees of their fever for a longer or shorter time, with corresponding amelioration of other symptoms. It will be seen that the time taken by the open-air treatment to produce defervescence varied greatly in the several cases, and it is hard to determine on what this variation exactly depends. The stage of the pulmonary lesion has little to do with it, for Case 6 with a large cavity lost his fever in thirty-one days, while in Case 1, who had no discoverable signs of disease, fever persisted for 128 days. Nor does the length of the illness necessarily affect the behaviour of the fever to treatment. In fact, the prognosis as regards the fever is that of the disease itself. It is refractory in proportion to its height and to the general debility of the patient. My twenty-four cases were all characterised by fever limited to the afternoon and evening, their morning temperatures being normal or subnormal. Those patients whose temperatures do not fall below about 99·6° F. in the mornings are not suited to strict open-air treatment. The former type of fever obtains in the great majority of cases and depends probably on intoxication of the system with the products of microbes, whereas the latter type is probably also significant of some associated inflammatory affection such as pneumonia, pleurisy, or bronchitis. Until the morning temperature has fallen these patients should be confined to bed in a well-ventilated room, but afterwards they often do exceedingly well under the strict open-air *régime*. In some of my cases gain in weight and general improvement preceded any decline of the fever and I would say that if encouraged by any general improvement it is right to persevere for many months in the treatment in spite of obstinate evening fever. My cases also indicate that at least a month may elapse before cases that eventually do well manifest the slightest improvement in any particular. Reference to the temperature charts will distinctly show that more improvement was effected in the cooler months than in the summer. It was quite remarkable to notice in 1896 how all the cases then under treatment simultaneously manifested decline of fever when the hot month of August was passed. This is in harmony with the experience of the continental sanatoria whose winter results are always the best. For some years I have made a point of asking all my phthisical patients whether summer or winter suited them best and I find that the majority of them prefer cold weather. These facts emphasise the point that our aim in

[9] Brit. Med. Jour., Aug. 14th, 1897, p. 433.

treating phthisis should be to invigorate the patient, not to coddle him. The most marked gain in weight took place in recent cases; those who had lost it rapidly regained it rapidly, while less severe cases, but of longer duration, gained but little of the flesh that prolonged spoiling of their organs and tissues had robbed them of. As I have already said, in one-third of my cases gain in weight was observed to precede any decline of the fever, but in the remainder it corresponded closely with lessened evening temperature. Within the first few days of commencing the outdoor life it was fairly constantly noted that the appetite had increased, and many of my patients who had manifested obstinate anorexia gradually developed the power of eating and digesting well without the prescription of anything but open air. Such a result is what one would naturally expect. Night sweats were soon diminished, often before there was any drop in the evening temperature. As a rule my patients slept better after a week or more of this treatment, but in one case belonging to the erethitic type of phthisis insomnia was a marked result of Cromer air. Cough was often increased for the first few weeks or less of their new life, but gradually lessened again as general improvement occurred. The first effect noted by the patient himself is a sense of comparative well-being and an improvement of spirits. The phthisical patient remarks that his weakness and languor are lessened and that he is made less conscious of his illness.

I was particularly curious to ascertain the effects of the open-air treatment on two patients suffering from phthisis who had developed their disease while following a wholly out-of-doors employment. They were both most favourably affected thereby. Otherwise one would expect that the fact of the malady arising from confinement in a close atmosphere would be a special indication for this method of treatment. Eighteen out of my twenty-four cases had followed indoor occupations and thirteen of this number considered that the air in which they had worked was bad. In no fewer than five of these cases the statement was made that one or more fellow workers were also phthisical. I will not speculate as to whether these were instances of contagion or of exposure to similar conditions producing similar disease. In no case could I find evidence of house infection, but ten patients had a family history of the disease.

Two cases (Cases 1 and 6) developed ischio-rectal abscess and fistula after their pulmonary disease had subsided, but both made good recoveries from this complication. Sir R. Douglas-Powell[1] states that the frequency of fistula in phthisis is 5 per cent. My large proportion serves to somewhat corroborate the observation that tuberculous disease driven from one spot is likely to break out in another. Two patients whose phthisis had become quite arrested developed albuminuria and other manifestations of lardaceous disease of the kidneys. This is one of the more frequent causes of death in phthisical patients whose pulmonary lesions have undergone arrest and fibrosis.

The *rationale* of the open-air treatment of phthisis lies chiefly in the fact that it is directed against the most powerful cause of the disease. No factor in the etiology of phthisis is better ascertained than its relationship to overcrowding or, in other words, vitiation of the air. Speaking of the increased mortality from phthisis in towns Wilson Fox says[2]: "The only common factor is a vitiated atmosphere." The Registrar-General's report gives the deaths from phthisis in both sexes per 1000 of population as 4·6 in twenty-five towns and 3·7 in seven country districts. The relationship of over-population to phthisis is equally recognised by continental writers. Bertillon has shown that the number of deaths from this disease in the several districts of Paris varies very nearly with the density of the population. The most recent exposition of this fact is Dr. Chalmers's[3] inquiry into the relationship between room-density and the distribution of phthisis mortality in Glasgow. "The room-density of the whole city fell from 2·040 in 1881 to 2·033 in 1891, or a decrease of seven persons per 1000 rooms, and its phthisis rate from 268 to 230 per 100,000 living. All districts save one having a phthisis death-rate above the mean have a room-density also above the mean." That this prevalence of phthisis in crowded communities is not dependent on poverty or its accompaniments is proved by the fact that its mortality is similarly excessive amongst our soldiers who are congregated in barracks and among prisoners,[4] while soldiers under canvas suffer much less from the disease. Animals also are more affected with tuberculosis when housed than when allowed to be at large. This has been noted over and over again in the case of cows, horses, monkeys, and other beasts. Moreover, Trudeau[5] adduces experimental confirmation: he inoculated a number of rabbits with tuberculous virus and confined some in a dark, damp place, while the others were allowed to run wild. The former animals rapidly succumbed to tuberculosis, while the latter either recovered or showed only slight lesions.

Miquel's well-known experiments furnish an important clue to the reason of the unhealthiness of the air of crowded localities. He ascertained that air taken 2000 to 4000 metres above the sea contained no bacteria per cubic metre; air taken in the park at Mont Souris contained 760 bacteria per cubic metre; taken in the Rue de Rivoli 5500; and in a hospital ward 11,100.

It is impossible to say how much the prevalence of phthisis in crowded areas depends on the direct infection of the healthy by the sick. Theoretically one would accept this as the chief mode in which phthisis is conveyed, but there are certain practical objections such as the frequently noted rarity of phthisis among those residing in hospitals for phthisical patients.

We know that under ordinary circumstances the bacillus of tubercle cannot continue to exist for long outside the living body, but Dr. Ransome[6] found its virulence was retained for from two to three months in an insanitary cottage, while in a well-ventilated house tuberculous sputum quickly lost its virulence. This perpetuation of the virus in the absence of fresh air and sunlight offers an explanation of the excess of phthisis in over-populated localities. But something must also be allowed for the lessened resistance of the individuals living under insanitary conditions.

Lastly, Dr. Niven suggests that "the tubercle bacillus may take on increased virulence by sojourn in polluted air or ground." Two points are achieved by the open-air treatment: (1) the patient respires air which contains relatively few microbes; and (2) the patient's powers of resisting the disease are increased by improvement of the general health.

1. As regards the tubercle bacillus itself the experiments of Ransome and Delépine[7] prove that its virulence is arrested by exposure to fresh air and sunlight. "Mere exposure to light in otherwise bad sanitary conditions does not destroy the virus." Even in the dark, although its action is retarded, fresh air has still some disinfecting influence.

Sir R. Douglas-Powell,[8] in his account of the septic ulceration that is met with in pulmonary cavities, says that this process is "known to have been endemic in overcrowded wards and to have ceased when a bed was removed." Speaking again of pulmonary excavation he writes: "Such patients have internal wounds or sores which are accessible to the contamination of foul air and that erysipelatous processes may be readily set up in them." The well-known advantages of placing the wounded in time of war in open tents instead of inside confined buildings have an exact parallel in the benefits received by phthisical patients from pure air. In both cases the absence of pathogenic organisms is sought for. Miquel's observations indicate the localities where this requisite absence or scarcity of microbes are to be met with—as far away as possible from human habitations. Dr. Ransome[9] describes the open-air treatment as "hyper-aeration," and says that it means purer air than is to be obtained in the cleanest house, and in another place he quotes Carnelly's[10] observations on the effects of cleanliness on the number of micro-organisms in the air of a house. Of all requirements for the cure of phthisis "none is so essential as the purity of the atmosphere."[11]

The part played by micro-organisms—other than the tubercle bacillus—in the production of the various manifestations of phthisis is now recognised as one of extreme importance. In a most valuable paper[12] Dr. Prudden gives

[1] Diseases of the Lungs and Pleuræ.
[2] Diseases of the Lungs, p. 515.
[3] THE LANCET, May 29th, 1897, p. 1482.
[4] Quoted by Wilson Fox.
[5] Quoted by Osler: System of Medicine.
[6] Milroy Lectures, THE LANCET, March 8th, 15th, 22nd, and 29th, 1890.
[7] Proceedings of the Royal Society, vol. lvi.
[8] Diseases of the Lungs.
[9] Treatment of Phthisis.
[10] Milroy Lectures, 1890.
[11] Dr. Weber: Croonian Lectures, 1885.
[12] New York Medical Journal, July 7th, 1894.

an account of some experiments he carried out to ascertain the *rôle* of the streptococcus in phthisis. In the first set of rabbits he introduced the tubercle bacillus through the larynx and obtained various forms of pulmonary tuberculosis in which the occurrence of excavation, however, was quite exceptional. In a second series only streptococci were injected and were found to produce a broncho-pneumonia which was usually slight and of short duration. But when in the third series streptococci were injected into lungs already the seat of tuberculosis from the previous introduction of the tubercle bacillus a remarkable formation of cavities was observed. One must remember that the rabbit is peculiarly susceptible to the tubercle bacillus and insusceptible to the streptococcus; it cannot, therefore, be concluded that streptococci are the essential cause of excavation in man. "The inference seems justifiable, however," that the presence of streptococci or of small quantities of their products may contribute to the necrosis and disintegration through which cavities in man are formed or increase in size.

This "mixed" or "secondary infection" in phthisis has also been studied by means of the sputum, the blood, and of the lungs themselves after death. The method advocated by Kitasato [13] is to choose a more solid piece of sputum, wash it thoroughly in distilled water, and take cultures from its centre. In this way Cornet [14] investigated twenty cases of pulmonary tuberculosis and found the streptococcus predominated in twelve cases, in two cases a non-mobile bacillus and in two cases the bacillus pyocyaneus. In most cases staphylococcus pyogenes aureus was present and in some it was the most abundant organism. In two cases streptococcus was noted to be present during an attack of fever and disappeared as the temperature declined. In an examination of twenty cases post mortem and during life Babes [15] found the streptococcus in twelve cases in such predominance that he considers their share in the production of the lesions cannot be doubted. Both streptococci and staphylococci have also been found in the blood of phthisical patients affected with hectic.[16] The part played by streptococcus and perhaps other organisms in tuberculosis is evidently a subject of immense importance, but it is in need of considerable further elucidation. Whether secondary infection is to be held accountable for the formation of the cavity chiefly or for the hectic of phthisis we are not at present able to decide. The bearing of "secondary infection" on the action of the open-air treatment of phthisis is obvious and during the last six months Dr. E. Verdon has kindly undertaken to examine bacteriologically the sputum of any patients before, and during, their stay at Cromer. The number of investigations yet made do not permit any definite conclusion to be arrived at, but I may say that the occurrence of typical streptococcus chains has been noted in cases that were not characterised by hectic; and, again, in some cases with hectic no streptococci have been found. On the other hand, these organisms have been found abundantly in more than one case characterised by rapid excavation.

2. That life in the open air conduces to a general invigoration of the constitution is so obvious that no support is needed for the statement; the relative health enjoyed by outdoor and indoor workers is a matter of common knowledge. It will also be admitted that the patient's means of conquering phthisis depend upon the condition of his general health. The *rôle* played by constant medical supervision and discipline must also be taken into account. I was not able in a home for convalescents to test the value of methodical douching and massage. I cannot think that they play a very large part in the "cure" and Dr. Weber [17] when speaking of the hygienic treatment of phthisis says: "Several patients who did well had neither any remedies nor any douches." The two main objects of the treatment then are restitution of the general powers and the production of comparative asepsis as regards the pulmonary lesions. It is not likely that the above means for procuring these ends will ever be altogether superseded. If some efficient tuberculin or other specific remedy is introduced it is probable that the open-air treatment will but be rendered of greater and more permanent benefit than at present. The value of this treatment appears to depend on its double action, by which it is distinguished on the one hand from methods which aim solely at increasing the patient's strength and on the other hand from those which only seek to destroy the virus by antiseptics or special antidotes. Neither of these plans alone have so far yielded satisfactory results. Dr. Heron and others have kept phthisical patients for long periods in an atmosphere impregnated with carbolic acid, Dr. Ransome has caused them to respire air so heated that it was sterilised, while most of us have tried the effects of administering antiseptics by the mouth. Of these agents the most popular at the present time are creasote and its derivatives. With regard to these remedies Dr. Whittaker's [18] conclusions appear to me to be very true. He states that creasote has no direct action on the tubercle bacillus or on the streptococcus of secondary infection and it does not affect hectic. It has the power, however, of destroying the lower organisms, especially those of fermentation—"hence the undeniable virtue of creasote is chiefly nutritional."

The value of guaiacol is probably fairly accurately represented by Dr. Ransome's [19] comparison of 100 consecutive cases of phthisis treated by this remedy with another 100 cases in which it was not given. In the former group 80 gained and in the latter 72. The average increase of weight among those taking guaiacol was 4 5 lb. and among those not taking it 3 7 lb. At the same time 5 patients among the latter gained over a stone, against only 4 amongst those treated with guaiacol. The drug, therefore, cannot be regarded as an agent of great power against phthisis. The only remedy that can claim to be at all specific in its action is tuberculin. Though a few physicians have continued to use this since its introduction the bulk of the profession have declared themselves against it, and though the new tuberculin is only now on its trial yet the reports that have so far been published are anything but convincing as to its utility. As far as one class of remedies goes the advantage belongs, I think, to that of tonic and nutritive agents. Speaking of cod-liver oil Dr. Wilson Fox said:[20] "Its use has probably done more than any other remedy to mitigate the evils of phthisis and to increase the duration of life in this disease."

While, therefore, the treatment of phthisis by drugs has been disappointing the greatest reliance has been placed on those which strengthen and nourish the patient. These are the aims of the sanatorium treatment, but it is claimed for its active principle, fresh air, not only that it represents the best tonic for the phthisical patient, but also that it offers the best conditions for lessening the number of microbes invading the lungs. At present it can scarcely be gainsaid that hygiene affords the most efficient means which we possess of combating phthisis. I will not say that for those whose circumstances permit it the treatment cannot be more advantageously carried out during the winter abroad than in England. The smaller amount of moisture in the atmosphere, the lessened rainfall, the greater amount of sunshine, and especially the remarkably exhilarating effects of the air in some of the foreign winter resorts must, in my opinion, be in their favour. These advantages may be more than outweighed, however, by the objections to leaving home, the separation from friends, the inferior food, and many other considerations. Anyhow, for the larger proportion of sufferers there is no choice—the treatment must be available in their own country or nowhere. In the summer there is, perhaps, no climate more suitable to the ordinary case than that offered by England. I am very glad to know that two private sanatoria have recently been opened at Bournemouth and that Dr. F. R. Walters contemplates starting a third in the southern counties. The chief object that I have in view is to awaken public feeling to the necessity of providing the *poor* phthisical patient with the means of obtaining adequate treatment for his malady. The erection and maintenance of sanatoria in England where the humbler phthisical patient might receive this treatment and for a sufficiently long time would be one of the best uses money could be put to.

This paper seeks to establish the desirability and practicability of availing ourselves at once of the sanatorium treatment in this country. It does not seek to contend that Norfolk is pre-eminently adapted for the purpose beyond other parts of England; at the same time I must admit a personal bias in its favour. The mortality from phthisis for the whole county during the last seven years averages,

[13] Zeitschrift für Hygiene, vol. xi.
[14] Congress für innere Medicin, 1892.
[15] Congrès pour l'étude de la Tuberculose.
[16] Petruschky and Jakowski.
[17] Transactions of the Medical and Chirurgical Society, vol. lxix.
[18] American Text-book of Therapeutics.
[19] Treatment of Phthisis.
[20] Diseases of the Lungs.

find, 1·1 per 1000 living. Many parts of Norfolk have an unusually low rainfall, the average of the last five years at Cromer being twenty-four inches. The air is keen and bracing and with the exception of occasional mists from the sea fogs are unknown. There is a great deal of sunshine, but the summer heat is usually moderated by a cool breeze. The early part of the winter is considered the best time of the year by the inhabitants, as bright and dry weather is usually experienced then. The soil of Cromer and many other parts of the county is of sand and gravel.[21] The following passages also bear on the suitability of the district for the treatment of phthisis. Dr. Weber and Dr. Foster[22] give the first place to east coast resorts, Hunstanton, Cromer, &c., as summer residences for more vigorous patients.

Dr. Thorowgood[23] speaks highly of Yorkshire and Norfolk and says that these parts are not so hazardous even in the winter as might be thought by some. He saw a patient in the second stage with both lungs affected in whom the disease became arrested in the most extraordinary way by the patient fearlessly encountering the east winds of spring on the Norfolk coast. He had "seldom seen pulmonary symptoms so promptly and decidedly checked by any remedy as they were in this case by a strong and bracing air." I was much impressed by the case of a man, who was given a pension by his employers under the idea that he could only survive his advanced phthisis a few months. Believing himself doomed the patient decided to enjoy his last few months of life in the exercise of his favourite pastime. He came to Norfolk and spent all his time in river fishing. He completely recovered and for the last twelve years has continued to enjoy his pension, his fishing, and his *health*. He is out in his boat in all weathers all the year round.

Dr. C. T. Williams's[24] classical statistics on the effects of home stations on phthisis have an indirect bearing on the suitability of Norfolk for its treatment. Basing his inquiry on 243 patients, who wintered at Torquay, Bournemouth, Ventnor, or Hastings, he finds that the proportion "improved" varies directly with the easterliness of the station. "The more westerly the station the greater the number of 'worse.'" Returning to the consideration of the selection of cases for the open-air treatment there is not so much discrimination needed as in the treatment by climate. While most patients do better in a bracing air there are some—including of course the erethitic phthisical patient—who will be more suited by a sedative climate. Otherwise the sanatorium treatment is applicable in all cases that on general principles appear susceptible of improvement. And it is only in the more exceptional cases of acute phthisis that at some time in their course a more favourable period will not occur, when it will be possible to step in with determined treatment and secure more or less benefit. No treatment would be hopefully undertaken in cases which give evidence of running a rapid course which present the combination of a persistently high evening temperature (102° or more), with a weak, rapid pulse. Those in whom the disease has extended to other organs and cases of markedly catarrhal phthisis would require some modifications of the treatment.

Patients who for various reasons cannot leave their own homes should be treated there on the same lines. Messrs. Boulton and Paul have constructed for me a simple shelter which can be turned to afford shelter from any wind. Some form of blind is necessary in the summer or the heat of the sun makes the shelter too hot. In spite of weather the treatment can be confidently undertaken in suitable cases and so long as the patient is sheltered from the wind and properly clothed no apprehension need be felt as to his taking harm from exposure. From a study of a large number of cases Dr. Ingals[25] concludes that nasal catarrh is less frequent in tuberculous patients than in healthy people. Under this life they certainly become less prone to every form of catarrh. Bedroom windows must be kept constantly open and no room whose air is at all confined must be entered on any account. I am convinced that practitioners have only to make more systematic use of the open air to realise that in it they have always at hand an active remedy for phthisis. Our country has always been foremost in its care for the welfare of her sick and an effort must be made to secure sanatoria for the English phthisical patients where the most efficient treatment as yet known to us can be carried out. The public must be impressed with the curability of this dreaded disease and with the virtue of pure air. As Dr. Henry MacCormac says: "If, indeed, pure air were a thing of price, of factitious price, I mean, for otherwise it is priceless, if people had to dive for it into the sea depths or grovel for it in the mine they would only value and appreciate it."

Norwich.

[21] For much of the above information I am indebted to Dr. Musgrave, who is now keeping scientific records at Cromer.
[22] Allbutt's System: Article, "Climate."
[23] Climatic Treatment of Consumption.
[24] Influence of Climate on Pulmonary Consumption.
[25] Brit. Med. Jour., Nov. 13th, 1897.

A CASE OF HEMIPLEGIA WITH CONVULSIONS.

BY JOHN McG. MAC CORMAC, M.D. DURH.,
HONORARY PHYSICIAN TO THE VICTORIA HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, BELFAST.

THE patient, a boy, aged seven years, was brought to hospital on March 28th, 1897, for convulsions and for wasting and weakness of the right arm and leg. His family history was good on both sides; there was no history of syphilis or tuberculosis. The patient was the eldest of a family of two boys and two girls, all healthy. With regard to the history of the present illness, the patient was healthy and well-developed till the age of three months, when he was vaccinated. The mother states that "on the eighth day from the date of inoculation the left arm was greatly swollen almost to the wrist and as red as fire"; that the child slept badly on the previous night and was very feverish and restless, and this continued during the day. About the middle of the following night the child was seized with convulsions which continued for two hours; he then slept for three hours and for about five hours lay in a state of stupor and this continued to a lesser degree for fourteen days. Then he had a series of convulsions with intervals of about half-an-hour of partial consciousness. These convulsions involved chiefly the right limbs, the left side of the body being only slightly affected. During the intervals of partial consciousness the child moved the left limbs but never the right. Convulsions continued up to three months after admission to hospital at intervals varying from three days to two months. The loss of power in the right limbs followed by wasting of the muscles, which commenced at the age of three months, has continued unaltered up to the date of admission. The lower part of the face was at first affected but resumed its natural appearance one month after the date of seizure. On admission there was marked wasting of both the arm and the leg of the right side. There was almost entire loss of voluntary power in the right arm. The arm was adducted, the forearm was flexed, the hand was adducted, and the fingers were flexed. With regard to the right leg, the heel was raised and the foot was inverted and on walking the patient dragged his foot and rested on the toes. The muscles of the arm and the leg reacted to both faradaic and galvanic currents, but less readily than those of the left side; a mixed reaction of degeneration was present, the anodal closure contraction being equal to the kathodal closure contraction. Sensation was normal. Speech was unaffected. In February, 1898, during the past ten months there had been great improvement and at the present time the atrophy of the muscles has almost entirely disappeared. The voluntary power over the arm is almost of normal extent and the patient walks fairly well except for a slight limping of the right leg. He has not had a convulsion during the past nine months.

The following points in this case appear to me to be interesting: (1) the nature of the onset and (2) the region of the brain primarily affected. It seems to me that the vaccination was the primary cause in this case. We have a history of much local inflammation and irritative fever and we know that the blood changes produced during fevers are sufficient to induce both convulsions and paralysis. The immediate cause may have been the formation of a thrombus in an artery and possibly in a vein. That the lesion was situated in the cortex is, I think, evident from the fact that recurring convulsions specially manifested locally are practically only seen in cortical lesions, and it appears to me

possible that the occlusion by a thrombus of the second branch of the middle cerebral artery by affecting the middle part of the ascending frontal convolution of the left side might cause the conditions above described. This case shows the possibility of obtaining great improvement even after epileptoid convulsions, paralysis, wasting, and contraction of the muscles have continued unaltered for the long period of six years and ten months.

Belfast.

PENETRATING WOUND OF THE ABDOMEN: AN INTERESTING CASE.

BY J. P. ZUM BUSCH, M.D. FREIBURG, M.R.C.S. ENG.,
HONORARY ASSISTANT SURGEON TO THE GERMAN HOSPITAL.

A STRONGLY built man, forty-three years of age, was riding on a bicycle behind his brother late on the night of Sunday, March 13th, when the machine of the latter capsized. As a collision could not be avoided the second rider ran into his brother's bicycle and was thrown to the ground, breaking his own handle-bar in falling. Both brothers seemed not much hurt at the time and were able to walk home, a distance of about three miles. The one whose machine had capsized complained about his knee and his brother and another relative took him to the German Hospital, where the house surgeon on duty, Dr. Krieg, diagnosed a slight contusion and allowed the patient to go home again. When leaving the room the elder brother, who up to that time had not complained about being injured, turned suddenly pale. On being asked whether he felt any pain he pointed to a slight abrasion on the chin and said that he thought his abdomen might also be slightly grazed. Dr. Krieg, however, insisted on examining him and found a penetrating wound of the abdomen with prolapse of the omentum. He at once had the patient undressed and he most carefully cleansed and disinfected the abdomen, finally covering the injured parts with hot sterile gauze compresses. In the meantime I had been sent for and arrived about an hour later. The patient, who was quite conscious and but slightly collapsed, consented to a thorough examination and was put under chloroform by Dr. Krieg. It was then found that the broken handle-bar had struck the ensiform process, but having been deflected by that bone had entered the abdominal cavity between it and the umbilicus. The wound was enlarged as far as the skin was undermined and the protruding omentum was ligatured close to the colon transversum and removed. It was now seen that the recti and their sheaths were severely lacerated and parts of these structures were missing. In the peritoneum there was a large irregular defect. The adjacent parts of the abdominal cavity and its contents were now carefully examined for further injuries or fragments of cloth, &c., but nothing was found except a few débris of fat and some coagula, which were, of course, removed and the parts cleansed with sterile gauze. As I felt pretty sure that the gut was not cut I closed the peritoneum with a continuous silk suture and then united as carefully as possible the torn recti and their fasciæ by separate rows of sutures. After paring the edges of the superficial wound and removing a large part of the much bruised and besmeared subcutaneous fat I closed the wound, only leaving the lowest part open, where a small strip of iodoform gauze was inserted as it was feared that some more of the fat might become necrotic. The patient bore the operation very well and was only sick once after it. The temperature was quite normal till the fourth night, when it suddenly rose to 102° F., the patient feeling, however, quite well. The dressing was then changed for the first time and on removing the gauze some bloodstained fluid escaped. From that time up to the 24th the temperature has been quite normal and the patient is progressing very favourably, his appetite and other functions being excellent.

The interesting points in this case are, in my opinion, the severe lacerations of the abdominal wall and the lucky escape of the gut and the very small constitutional effects these considerable injuries produced. I have, however, during the last nine months seen three other similar cases which all ended in recovery. All these patients walked to the hospital not knowing that they were so badly injured. One, a little boy, suffered from a penetrating wound with prolapse of the omentum caused by falling on some broken glass. The second, a lad aged twenty years, had been stabbed and came to the hospital on foot; he also had a large penetrating wound with prolapse of omentum and a considerable part of the small intestine. The third patient, a woman, had been stabbed by her husband and she came to the hospital with a small puncture in the abdomen. I enlarged the opening and intended to follow the wound to the peritoneum to see whether the latter structure was penetrated or not. There was a small rent in the peritoneum and a part of the omentum was tightly gripped by it. On opening the abdomen further the penknife was found to have penetrated the small intestine and to have made a rather large incision into it. This was closed by Lembert's sutures and part of the omentum was removed. All these patients on admission to the hospital had little idea that they were dangerously ill and in no case was the collapse severe.

As regards treatment the lines to be followed were quite clear in the first three cases, as there was no doubt that the abdominal cavity was really opened. Resection of the protruding omentum and replacing of the stump and intestines were always followed by careful inspection of the adjacent parts. In the fourth case there was no evidence of the wound being a penetrating one. In such cases I think it the duty of the surgeon to enlarge the wound and follow the canal down to the peritoneum. In this way, much better and more safely than by probing, can a diagnosis be made. Should the surgeon be forced to wait owing to some unforeseen conditions then I would advise him not to use opium in any form, as it will probably do no good whatever but will often by masking the symptoms of a commencing peritonitis deceive the patient and his medical attendant.

Finsbury-square, E.C.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF ETHER-PNEUMONIA.

BY C. TANFIELD VACHELL, M.D. LOND.,
SENIOR PHYSICIAN TO THE CARDIFF INFIRMARY.

THE following notes of a case of ether-pneumonia may be of interest as illustrating a point in Dr. Frederic Hewitt's lectures on the administration of anæsthetics.[1]

A man, aged twenty-five years, was admitted into the Cardiff Private Patients' Hospital on Feb. 23rd, 1898, suffering from varicosity of the left internal saphenous vein. At 11 A.M. on the 24th the vein was ligatured and divided in four places by Mr. J. Lynn Thomas, anæsthesia being produced by ether administered by myself by means of a Clover's apparatus. Very considerable cough was occasioned by inhaling the ether and there was much delay consequently in procuring insensibility, but it was remarked that the quantity of ether required to maintain full anæsthesia was less than usual. The patient was under the ether from first to last about half an hour. There had been some little cough on the day preceding the operation and during the night after the patient's admission to the hospital he awoke with a cough at 2 A.M. and did not sleep again, but this was attributed to nervous apprehension. He vomited repeatedly after the operation and at 9 P.M. his temperature was 102·5° F. At 2 A.M. he began to expectorate frothy mucous freely and he had very little sleep. On the following morning (Feb. 25th) there was some dulness at the base of the left lung. Expectoration was free and muco-purulent, with no rusty tinge. The temperature was 99°, rising again at night to 104·4°. The pulse was 120 and the respirations were 32. The expectoration was now slightly tinged with red. On the 26th the temperature had fallen to 100° and remained about this point until March 6th, when it fell to 99° and then speedily to normal. The muco-purulent expectoration continued for

[1] THE LANCET, Feb. 19th, p. 483; March 5th, p. 623; and March 19th, p. 772.

several days and the dulness cleared away about March 8th. The patient was discharged with very little cough on the 10th.

Cardiff.

A CASE OF SCIRRHUS MAMMÆ BEGINNING IN THE AXILLA.

BY C. E. M. KELLY, M.D., B.S. LOND., F.R.C.S. ENG.

IN connexion with the case reported by Dr. Herbert Snow in THE LANCET of March 12th, p. 717, the following may be of interest. The patient, who is still under observation, is a feeble old woman nearly eighty years of age. When she first sought advice it was found that there was a tumour as large as a pigeon's egg, of stony hardness, in the mid-axillary line on a level with the fourth rib. It was quite fixed, was adherent to the chest-wall, and had ulcerated through the skin; at this time it appeared to be quite unconnected with the breast itself. The age and general condition of the patient rendered operation inadvisable, so that the course of the growth has been watched. It extended during the following months along the lower border of the pectoralis major into the breast which became extensively involved. Retraction of the nipple took place and œdema of the skin, showing blocking of the lymphatics, and now the case has the appearance of a typical slow-growing scirrhus with the addition of the process extending into the axilla and the ulcer where the growth commenced. There is no glandular enlargement to be felt as yet. In this case the tumour apparently extends by continuity into the breast and does not start in an outlying and free nodule of glandular tissue.

Highbury, N.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

METROPOLITAN HOSPITAL.

A CASE OF RENAL CALCULUS; REMOVAL BY NEPHROTOMY; RECOVERY.

(Under the care of Dr. ARTHUR DAVIES and Mr. STEPHEN PAGET.)

As Dr. Davies points out in his remarks the pain felt in the loin radiating round the abdomen in cases of renal calculus is often attributed to attempts made by the stone to pass into the ureter; but it is explicable rather as due to irritation of some of the nerves with which the kidney is so fully supplied. The pain of ureteral colic is different in character and different in its position for it passes definitely downwards towards the testis and thigh. The case illustrates the ease with which a stone can sometimes be found in a kidney by needling; yet numerous cases have been recorded in which stones quite as large as that found by Mr. Paget have entirely escaped discovery even after the very thorough use of an exploring needle.

A man, aged twenty-three years, was admitted into the Metropolitan Hospital on March 30th, 1896, complaining of great pain of a lancinating character in the left side. The first attack occurred two years previously and lasted for two hours; a year afterwards he experienced a similar attack which was of short duration only; and a month before admission to the hospital he had another attack which lasted for some hours. He described the attacks as coming on quite suddenly. The pain was intense, radiating round the loin to the middle line of the abdomen and not descending down the thigh or to the testis. The pain ceased as suddenly as it came on. The patient had not noticed any alteration in the colour of his urine during or after an attack. As regards the previous history of the case he had an attack of left pleurisy in 1887. He said that taking beer always increased the tendency to pain in the left side. His father passed a stone two years previously. When the patient was admitted he was doubled up with pain which caused vomiting. There was less expansion on the left side of the chest than on the right and the note was impaired. No pain was felt over the left kidney on deep palpation. The urine was of specific gravity 1018 and contained a cloud of albumin. When the urine was examined under the microscope blood corpuscles, granular casts with oxalate of lime crystals, and pus cells were seen to be present in great number. As the symptoms continued Dr. Davies requested his surgical colleague, Mr. Stephen Paget, to explore the left kidney with a view to ascertain whether there was a calculus. This he did on April 16th. The kidney was exposed by a suitable incision and was found to be uniform in shape with no bulging. A harelip needle was passed into it and on the first occasion grated against some hard substance. An incision was made into the kidney following the course of the needle with a tenotome and on a finger being introduced it came immediately upon a calculus which was found lying in the pelvis of the kidney and was removed by a scoop. The calculus was composed of oxalate of lime and uric acid and weighed forty-nine grains. It was an irregular triangle in shape and was about an inch in its longest diameter. The patient made a perfect recovery.

Remarks by Dr. DAVIES.—It is noted in the above case that no pain was present on deep palpation. This is a point strongly emphasised by Sir Henry Thompson, who also insisted upon the fact that the majority of the cases of nephralgia are not calculous in origin. There was no pain radiating down to the inner side of the thigh or to the testicle. There seems to be no doubt but that the attacks of pain were due to the calculus irritating the renal pelvis and not to the passage of the stone into the ureter, though these attacks were formerly considered as a proof of such an occurrence. Similar attacks of pain are seen in cases of hepatic colic where the gallstones never leave the gall-bladder.

NORTH-EASTERN HOSPITAL FOR CHILDREN.

A CASE OF ENLARGEMENT OF THE THORACIC GLANDS AND BRONCHIECTASIS ACCOMPANIED BY A PECULIAR SPASMODIC COUGH; NECROPSY.

(Under the care of Dr. J. P. PARKINSON.)

IN the following case the much greater degree to which the left side of the chest was affected pointed to pressure on the left bronchus as the cause of the spasmodic cough, even though the spasms so closely resembled whooping-cough. The case is one of great interest.

A female child, aged six years, was admitted into the North-Eastern Hospital for Children under the care of Dr. J. P. Parkinson on Jan. 6th, 1898. The child had been healthy till she had an attack of whooping-cough when she was two years old, but had since suffered from a chronic cough. Fourteen days before admission shortness of breath came on, together with pains between the shoulders; a week later there occurred spasmodic attacks of coughing followed by vomiting, with occasionally slight traces of blood in the sputum. On admission the child was pale and thin and had clubbed fingers and toes; she was short of breath, breathing 40 to the minute. There were infrequent attacks of coughing resembling whooping-cough, with a definite whoop and causing much blueness and distress. The left side of the chest was smaller than the right and its movement was limited, the percussion note was dull both in front and at the back, and the breathing generally was obscured by numerous moist sounds, except about the lower angle of the scapula, where the breathing was cavernous in character. On the right side there was much impairment to percussion over the posterior base and there was also slight impairment at the apex and in the axilla. The breathing was harsh and numerous moist râles were heard all over. The pulse was 120 to the minute and compressible. The heart's apex beat was visible in the fifth space in the nipple line; the heart sounds were normal. The abdominal organs appeared to be normal and there was no albumin in the urine. The mucoid sputum was examined for tubercle bacilli but no bacilli were found. The temperature varied between 99° and 103° F. and the child got more dyspnœic and died on Jan. 12th.

Necropsy.—At the post-mortem examination the right lung

was found crossing the mid-line to beyond the left edge of the sternum and the left lung was markedly retracted. In the right lung there were a few patches of broncho-pneumonia in the upper and middle lobes, but no signs of tubercle were noted. The left lung was uniformly collapsed and the bronchi were uniformly dilated. This lung sank in water and the tubes were filled with a muco-purulent fluid. Behind and above the root of the left lung the lymphatic glands were enlarged (some to the size of a walnut) and massed together; the left bronchus was smaller than the right, but was not entirely occluded by the tumour. Microscopically these glands showed a hyperplasia of the normal lymphatic tissue. The heart was somewhat enlarged on the right side, but otherwise it was normal. The liver showed the appearances commonly known as "nutmeg liver." The kidneys were fairly normal.

Remarks by Dr. PARKINSON.—This case seems to be of some interest on account of the peculiar spasmodic cough accompanied by whooping and lividity and occasionally even by vomiting. These are usually due to a specific pertussis, but as the child had previously suffered from this disease and secondary attacks of it are rare I ventured to suggest during life that possibly some intra-thoracic pressure might be the cause, such cases being well recognised though lately they have received but little notice. I believe this to be fairly frequent, as during the past twelve months I have seen at least two others in which this condition has been verified post mortem. The cause of the peculiar cough is no doubt an irritation of the vagus or its lung branches by the growth, and a fact supporting this pathology is the occurrence sometimes of a similar whooping-cough in cases of locomotor ataxy (laryngeal crises). I have thought it worth while to record this case as I think that no similar ones have been recently published and the condition is sufficiently infrequent to warrant it. I wish to thank Mr. Hair, the junior house physician, for his careful notes and necropsy of this case.

BRADFORD ROYAL INFIRMARY.

A CASE OF ACUTE DORSO-LUMBAR MYELITIS; COMPLETE RECOVERY.

(Under the care of Dr. REGINALD G. ALEXANDER.)

THE completeness of the recovery in the following case of myelitis is worthy of remark, especially when the severity of the attack is considered. It is a little curious that the bedsores were all on the left side of the body, although the loss of sensation seems to have been equal on the two sides.

On Dec. 7th, 1891, Dr. R. G. Alexander was requested to visit a patient, aged twenty-three years, who had been for about ten days under the care of Dr. Whalley. The patient's family history was negative, but for years she had suffered from dysmetrorrhagia and leucorrhœa and she had worked in a hot, draughty place. On Nov. 25th she was at home suffering from menorrhagia, having been also excessively unwell the week before. She noticed aching of the legs and stiffness and experienced some difficulty in walking. On the 29th, in attempting to get up to dress, she fell, and since that time had been unable to move her legs even in the slightest degree. She had never had any previous illness or accident. The patient was a fair-complexioned, tall, well-formed woman, her mental faculties were clear, bright, and intelligent. There were sordes on the lips and teeth. She was absolutely paralysed from the waist downwards. The bowels had not been moved for four days and the urine had been drawn off by catheter in consequence of complete retention. There were large, deep, acute trophic bedsores on the left buttock, trochanter, and ankle. The tongue was furred and dry. The heart and lungs were quite healthy. The knee-jerks could not be obtained on either side. There was no ankle clonus and plantar reflex could not be obtained. Superficial abdominal and epigastric reflexes could not be obtained. Sensation was diminished to midway between the umbilicus and the ensiform cartilage. There was no zone of hyperæsthesia or anæsthesia; the arms were unaffected. Although the patient had a comfortable home the case was so serious and one which required so much nursing that both Dr. Whalley and Dr. Alexander decided to send her to the Bradford Infirmary. She was accordingly admitted under Dr. Alexander's care on the day he first saw her (Dec. 7th). During her residence in the hospital his colleague, Dr. Major, also saw her. On Dec. 10th the rectum was loaded with scybala, which were removed by the finger, and she was ordered a gravitation oil enema and to be placed upon a water bed. On the 13th the bowels were moved for the first time for ten days; an enormous quantity of fæces was passed. She was ordered five grains of iodide of strontium and an iodide of iron pill twice a day. On the 16th there was an involuntary evacuation of the bladder and rectum; the urine was very offensive, containing blood. There were constant dribbling of the urine and fæces, cystitis, and a large fresh bedsore on the sacrum. On the 21st she was ordered twenty grains of boracic acid powder in water three times a day. On the 23rd the urine was less offensive; there was still incontinence. On the 28th the urine had much improved and was not so offensive. Chicken and fish diet was ordered. The patient could now move the left leg very slightly. On Jan. 12th, 1892, the urine had much improved and could be retained for two hours. The bedsores were healing. She was ordered massage to the legs, &c., daily. On Feb. 18th the patient moved for the first time. She was ordered cod-liver oil and malt. The legs had been spasmodically drawn up at night and had become rigid. On March 6th the legs, semi-flexed, were very rigid; the knee-jerks had increased, there was ankle clonus both sides, and plantar reflexes were present. Her health was much improved, the bedsores had healed, and the patient was up daily. On the 29th the legs were rigid; there was passive extension daily and weight and extension pulleys were applied. On April 10th the patient was ordered a meat diet. She had power to flex and extend the feet. On the 27th she walked for the first time with assistance. On June 28th she had marvellously improved. The legs and thighs were now well developed and the muscles were firm and of good tone. There was no cystitis and she had control over the rectum. She had menstruated twice. The temperature had been very variable, ranging from 98° to 101°F. during the first month and during the second from 98° to 100°. She was discharged recovered after seven months' residence in the hospital.

Remarks by Dr. ALEXANDER.—As complete recovery is are from this severe disease I have purposely delayed publishing this interesting case in order to watch from time to time the progress of the patient. She returned to her usual duties and has been able to stand and walk all day long and to dance nearly all the dances at an evening party. The patient is, in fact, quite well and has been married many months and is now advanced in pregnancy.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Microscopic Detection of Uric Acid in the Blood.—Epidemic Malarial Fever of Assam.

A MEETING of this society was held on March 22nd, the President, Mr. BRYANT, being in the chair.

The PRESIDENT referred to the death of Sir Richard Quain and to that of Dr. Charles West. Both were widely known as men of science, of industry, and of great professional reputation. It would be remembered that the paper by Sir Richard Quain on Fatty Degeneration of the Heart, which was now a classic, was read before the Royal Medical and Chirurgical Society.

Dr. ALEXANDER HAIG gave a demonstration of some Results obtained by the Chloride of Ammonium Process, as suggested by Mr. Barker-Smith,[1] for the Microscopic Detection of Uric Acid in the Blood. The process was as follows. A minute drop of blood was placed on a microscope slide and mixed with a similar quantity of a 10 per cent. solution of carbonate of sodium and then with a similar quantity of a 20 per cent. solution of chloride of ammonium and put on a cover-glass. It was allowed to stand for thirty minutes, evaporation being prevented. The slide was then examined under $\frac{1}{6}$ in. or $\frac{1}{8}$ in. objective. Pale granules, generally

[1] Medical Times and Hospital Gazette, September, 1896

spherical and about from the one-sixth to the one-third size of a red blood-cell, were seen all over the field. Dr. Haig suggested that by counting all the granules in a field and then all the red cells in the same field a quantitative relation was obtained which might be of some value. The number of these granules in blood thus treated appeared to correspond in a remarkable way with the amount of uric acid passing in the urine. It corresponded also with the physiological fluctuations in excretion and the effects of drugs upon these. It also corresponded with what was known about uric acid in the blood of disease, the granules being very numerous in Bright's disease (especially large pale kidney) and chronic gout, and very scanty in early and acute fever. Under the microscope was shown a specimen of normal blood and one of blood from a case of Bright's disease for contrast. Dr. Haig believed that Mr. Barker-Smith's process thus modified would provide a reliable guide to the quantity of uric acid in the blood and urine and in that case its many advantages over processes at present in use would be obvious.—Dr. LUFF remarked that with reference to the method for the so-called microscopic detection of uric acid in the blood demonstrated by Dr. Haig no proof was adduced that the granules consisted of uric acid or urates. Uric acid had never been demonstrated in the blood by the one infallible test—the murexide test. It had been shown by von Jaksch, Klemperer, and himself that human blood in large quantities contained no uric acid. This was also true even of the blood of birds who eliminated their nitrogen in the form of uric acid. But in birds Sir A. Garrod and he found urea in the blood, although none was found in the urinary excrement. He believed that urea was converted into uric acid in the kidneys. Dr. Haig maintained that there was not enough uric acid in the normal human blood to give the murexide test. But if it were present in the amount stated by Dr. Haig 1·5 c.c. of blood would contain one hundred times the amount of uric acid which was recognisable by the murexide test. He (Dr. Luff) had operated with 1000 c.c. of bird's blood at a time without finding the least trace of uric acid. He did not believe that Mr. Barker-Smith's method was reliable for the detection of uric acid in the blood for the following reasons: (1) the blood of a goose, which he had shown to be free from uric acid, gave with this process an abundant crop of granules; and (2) cheese (which Dr. Haig admitted to be free from uric acid) when dissolved in caustic potash, filtered and treated by Mr. Barker Smith's method also yielded abundant granules. No process should claim to detect uric acid unless the body demonstrated could be proved to be uric acid. He felt bound to enter a protest as he considered the profession was being misled on the existence of so-called "uricacidæmia."—Dr. HAIG, in reply, said that he only undertook to give some results obtained by the method and not to prove that the bodies were uric acid. But he maintained that whatever they were—uric acid, xanthin, or other substances—the numbers of granules which could be counted corresponded exactly with the amount of uric acid which could be shown by chemical analysis to be excreted by the kidney at the same time. This was strikingly shown by the effect of administering a drug such as salicylate of soda which had the effect of increasing the elimination of uric acid. The granules which were normally present in the proportion of 1 in 8 of the red blood corpuscles rose almost at once to 1 in 2. He was quite prepared to believe that other bodies would give the reaction, as was shown by Dr. Luff to be the case with the blood of the goose and with a solution of cheese, but as a practical point the test was of value since the number of the granules corresponded with the amount of uric acid present in the urine. He challenged Dr. Luff to a trial of the method. He would examine the blood every half hour and Dr. Luff should estimate the amount of uric acid in the urine at the same periods and he had no doubt that the results would tally. He still held firmly to his belief that uric acid was present in the blood.

Surgeon-Captain LEONARD ROGERS, I.M.S., read a paper on the Epidemic Malarial Fever of Assam or Kala-azar. A brief account was given of an investigation of the epidemic disease known locally by the name kala-azar or black fever, which has slowly spread up the Assam valley during the last fifteen years, carrying off at least one-fifth of the inhabitants of the affected districts and depopulating whole tracts of country. It was first thought to be malarial, until its steady spread threw doubt on this view, and in 1889 a special investigation was carried out with the result that it was reported to be ankylostomiasis. It was, however, subsequently proved that these worms were as common in healthy people as in those affected with kala-azar; and in April, 1896, Surgeon-Captain Rogers was deputed to reinvestigate the subject and his official report was published recently. He found, in the first place, that the anæmia of the so-called kala-azar differed so widely in its type from that produced by ankylostomiasis as to enable the two diseases to be completely differentiated by a full examination of the blood, the details of which were given in the paper. Further, he found the disease to be from first to last a chronic relapsing form of malarial fever of an intermittent or irregularly remittent type, very resistant to ordinary doses of quinine, and producing progressive anæmia, great wasting, and in some cases dropsy, with great enlargement of the spleen and liver, and terminating in a very large percentage of the cases in death from fever, asthenia, diarrhœa, or lung complications. It attacked large numbers of a family and spread from one district to another in a wave of increased fever mortality, lasting from six to eight years in any one place. The ordinary quotidian malarial organism was constantly to be found in the disease but did not differ in its form from that of the ordinary malarial fever in Assam and Bengal. Evidence was also given to prove that the disease travelled along lines of communication and was checked by any stretch of uninhabited country, and it had been found that it was carried from village to village through a sufferer in an infected district going to live in an uninfected village. The first cases appeared in his own household and it then spread to the rest of the village; but the disease decreased markedly during the cold weather months, when the ground was dried up, only to break out again as soon as it once more became moist and warm in the ensuing spring, showing that the infection passed through the soil, while it was also very localised in its distribution. The epidemic was further found to have originated in an intensification of the ordinary malarial fever in a very malarious district by an extraordinary succession of unhealthy years due to very deficient rainfall, until it attained to the power of spreading, and its subsequent course year by year has been traced. The epidemic was therefore regarded as one of a very intense and communicable form of malarial fever, which had so far been limited in its incidence to an alluvial soil.—Dr. NORMAN MOORE (honorary secretary) read a communication from Sir WILLIAM KYNSEY (Ceylon) who was unable to be present. He agreed with Surgeon-Captain Rogers that kala-azar was not ankylostomiasis, but was a malignant form of malarial fever. Nevertheless he thought that sufficient importance had not been given to ankylostomiasis as a factor. Its effects in producing grave symptoms had been shown among the workmen engaged on the construction of the St. Gothard tunnel and among the natives of Egypt. These effects depended on the number of the parasites present and the state of the patient. As a rule the patients were plump though anæmic, with tongues which looked as if they had been whitewashed, and there was therefore little difficulty in distinguishing them from the cases of severe malaria in which the patients were thin and markedly cachectic, often with dark pigmented tongues. He thought that the doctrine that malaria could be infectious would require the demonstration of a specific parasite different from the ordinary malaria parasite and he was disinclined to accept it. It was often held that malaria broke out through the soil being dug up. He thought that an outbreak in such cases was not due to poison escaping from the freshly exposed soil, but to this damp soil forming an excellent breeding-ground for the parasites when introduced from without.—Dr. P. MANSON said that Surgeon-Captain Rogers assumed that there was no increase of iron in the liver in ankylostomiasis, but observers were not agreed on that point, and Dr. Daniels, of Demerara, had held that there was iron present and that substances were formed in the intestine which had a hæmolytic action similar to that of the malarial parasite. The crescent form had not been met with by Surgeon-Captain Rogers, although in Dr. Manson's experience it could always be demonstrated in cases of malaria. The absence of crescents showed that either the observations were incomplete or the parasite was different from the ordinary malarial parasite. He thought that the doctrine that malaria could be regarded as "infectious" was untenable and as unreasonable as to speak of hydatid disease as infectious, since in both cases the parasite

must pass through another intra-corporeal condition before infecting man. He thought that the doctrine of intensification of an animal organism was novel. He believed that there were "strains," some of which were particularly active, producing different manifestations, such as hæmoglobinuric fever in West Africa. He referred to the experiments of Dr. McCallum[2] on an intra-corpuscular parasite in birds. He found that the parasite occurred in two forms—one hyaline and the other granular. If the hyaline form were watched it developed flagella after a time. These became detached, penetrated the granular forms, and appeared to fertilise them. After fertilisation the granular bodies escaped from the corpuscles and became locomotive. Dr. McCallum had found the granular parasite free in the intestine and suggested that it was in this way that the malarial parasite entered in a man. But even if the flagellation were the first stage in a sexual process it could hardly be the cause of propagation in the human body as the flagellated form could never be seen in fresh blood but did not develop till after it had been drawn for fifteen minutes.—Dr. THIN thought that the paper went a long way to remove the reproach that the Indian authorities did little to investigate the cause of malarial epidemics in that country. He thought that it had been clearly proved by the paper that kala-azar was malarial, both from the demonstration of the parasite and from the post-mortem changes found in the liver and spleen. He did not agree with Dr. Manson that the crescent form was always to be found in cases of malaria. In several cases in which there were abundance of small parasites he had searched repeatedly but in vain for crescents. Filetti and Grassi, working under favourable conditions and with abundant material, also held that there were cases in which crescent formation did not occur. With regard to the intensification of the poison, whatever was the explanation, he thought that it often occurred. It had been shown, for instance, by Dr. Marshall that the tertian parasite in the south of Spain was weaker in spring than in August. The effect of the soil was often striking. In the town of Catania one side of the town was built on porous soil formed from the disintegrated lava from Mount Etna and malaria was almost unknown, whereas on the other side there was low-lying damp soil and the district was uninhabitable owing to the prevalence of malaria. He did not think that the evidence was as conclusive as Dr. Manson assumed it to be that the malarial parasite must necessarily pass through another animal.—Surgeon-Captain ROGERS, in reply, thought that the general opinion among those who were working at the subject in India was that the crescent form of the malarial parasite was by no means invariably met with. They were particularly numerous in virulent and relapsing cases. With regard to the infectiousness of malaria, it was of course impossible to prove anything until they could cultivate the parasite, but he thought that it was clearly proved clinically that the disease was communicable, either directly or through the soil, or after passing through some other animal.

OPHTHALMOLOGICAL SOCIETY.

The Aseptic Treatment of Wounds in Ophthalmic Surgery.—Ophthalmic Evidence of General Arterial Disease.—Exhibition of Living and Card Specimens.

AN ordinary meeting of this society was held on March 10th, Mr. H. R SWANZY, the President, being in the chair.

Dr. A. MCGILLIVRAY read a paper on the Aseptic Treatment of Wounds in Ophthalmic Surgery. After referring to the changes in the treatment of wounds brought about by Lister he went on to speak of recent modifications in method. These modifications consisted chiefly in reducing the strength of the antiseptic solutions used for douching purposes and the adoption of heat sterilisation for instruments and dressings. But when the importance of the natural antiseptic property or natural immunity of living tissues came to be more appreciated some surgeons discarded chemical antiseptics in operations altogether on account of their deleterious action on the tissues of the wound, and adopted sterilised physiological saline solution, as it produced no irritation but tended to keep the tissues as nearly as possible in their physiological condition. Antiseptic solutions, however weak, irritated or benumbed the cut tissues of a wound and thus their natural immunity became impaired. But the antiseptic solutions employed during operations had no germicidal properties unless when kept in direct contact with the micro-organisms for several hours or even days—a very undesirable procedure even if possible—so that their action was purely mechanical and, so far as the removal of micro-organisms was concerned, was limited to those on the surface, just as in the case of douching with normal saline solution. The position, then, of the aseptician and antiseptician was perfectly clear. The aseptician, by employing normal saline solution for douching purposes, and studiously preventing any chemical antiseptic from coming in contact with the wound, trusted to the inherent antiseptic properties of the tissues themselves in warding off or destroying any micro-organisms which might have been left in or which found access to the wound subsequently. The antiseptician, on the other hand, by employing antiseptic solutions impaired or destroyed the natural antiseptic property of the tissues so that they were thus less able to cope with micro-organisms. A description of the operation for the removal of senile cataract was taken to illustrate aseptic technique in ophthalmic operations. From the time the patient entered the hospital till he was discharged no antiseptic was allowed to come in contact with the eye. The patient's face was carefully washed on the morning of the operation with warm water and soap, special attention being paid to the folds in the skin of the eyelids. The eyelashes were cut short so as to allow the margins of the lids to be more easily treated and to prevent the eyelashes from coming in contact either with the instruments or with the wound during the operation. By means of a special douche the conjunctival *culs-de-sac* were flushed with sterilised salt solution (6 per cent.). The eyelids were in turn everted so as to allow their conjunctival surfaces to be carefully cleansed. This was of the utmost importance, as the conjunctival surface of the upper lid was the innermost and therefore the most important part of the dressing. After applying the speculum the part of the eye corresponding to the wound was again douched and the patient enjoined not to rotate the eye upwards till the operation was completed so as not to allow the wound to come in contact with the margin of the eyelid for fear of contamination. Mechanical cleansing of the conjunctiva with a mop was soon discontinued, as it produced undue irritation. All instruments, lotions, mops, and dressings were sterilised by heat, so that everything that touched the eye was aseptic. Before removing the speculum the eye was douched with a gentle stream of salt solution, the solution being allowed to play over the wound to remove any cortical or capsular *débris*. Some of the solution invariably found its way into the anterior chamber and was valuable in removing soft lens matter without causing any irritation. The dressing consisted of a piece of moist lint applied next the eye and one or two thin layers of absorbent cotton wool, the whole being kept in position by means of a vertical and horizontal strip of adhesive rubber plaster; only the eye operated on was covered. Throughout the operation and also during the preliminary treatment every treatment was employed to avoid irritating the conjunctiva as much as possible, because conjunctival irritation produced hypersecretion, for the nearer the conjunctiva was to its normal condition the better for operative interference. The motto in dealing with the conjunctiva should be, "Let sleeping dogs lie."—Mr. ARNOLD LAWSON had just completed the bacteriological examination of ninety-six apparently normal conjunctival sacs. In only two cases had he been able to find pathogenic organisms, the staphylococcus pyogenes albus; several non-pathogenic staphylococci were found, but these were all harmless. He had not found the streptococcus at all. He therefore did not consider that it was correct to say that the normal conjunctival sac was a receptacle for micro-organisms.—Mr. MACKINLAY always boiled his instruments and used saturated boric acid lotion for the eye during operations.—Dr. BRONNER considered that it was not possible to make the conjunctival sac aseptic, therefore antiseptics were necessary; he always put his knives into absolute alcohol before using them. He believed that cocaine by its action on the cornea favoured suppuration.—Mr. BICKERTON always boiled his instruments for two and a half minutes before the operation and again after using them. He irrigated the eye with perchloride 1 in 5000. He had only seen two cases of suppuration and both were in hospital practice.

Mr. MARCUS GUNN read a paper on Ophthalmoscopic Evidence of General Arterial Disease. After referring to a

[2] American Journal of Experimental Medicine, January, 1898.

case which he had shown at the society some years ago he went on to describe the appearances seen in the arteries affected, as part of a change in which the arteries of the body generally and of the brain in particular shared. The general reflex from the vessel was brighter than normal, the central light sheath was bright, and the whole artery was of a lighter colour than normal. This was due to a hyaline change in the arterial walls; as a consequence of this change the circulation in the veins was impeded and in some cases the vein became invisible where crossed by an artery. As a further result of this venous obstruction there was set up an œdema of the retina, which might be either general or partial, the effect of which was to blur the details of the fundus. In some cases the size of the arteries was not uniform; the vessel would be narrowed at one spot or increased in a certain part of its course; this change was most often seen in the small arteries in the region of the macula. The arteries were sometimes very tortuous. The central streak was narrow, bright, and with points of greater brilliance in it; this condition was also seen in hypermetropia and after optic neuritis in the vessels arising from the optic disc, but in diseased vessels it was those of the second and third magnitude which should be looked at. There was a loss of translucency of the arteries, so that where the vein passed behind the artery it could not be seen. On the other hand, if the vein covered the artery, the artery could be unduly seen through the blood column in the vein, because of the thickening of the arterial coat and partial emptying of the vein by the thickened artery as the two crossed each other. As a consequence of the hardness of the arteries there was an interruption of the venous current, the vein was distended, and often hæmorrhages took place along its course. The change in the arteries was a change in the coats, an irregular thickening; with this there was a loss in carrying power, and hence tortuosity. The change in the veins was due to the damming back of the blood; the walls of the veins and capillaries underwent degeneration, hence arose the hæmorrhages. The question of etiology was one for the physician. The change usually occurred between forty and fifty. If well marked at this age the prognosis was grave. The patients had often been subject to migraine, indigestion, or gout. Chronic alcoholism was also a factor in the causation. In some of the cases known as hæmorrhagic glaucoma this affection of the vessels was the cause of the change which gave rise to the hæmorrhages. It was in close association with renal disease, but the vessels of the eye and brain might be affected before the kidney. He had examined the eyes of all the patients in the National Hospital at one time who had had hemiplegia. In seven the arteries were normal, in ten they were affected, and in seven the changes were quite characteristic.—After remarks by Dr. JAMES TAYLOR, Dr. ALDREN TURNER, Dr. BRONNER, and Mr. MACKINLAY, Mr. GUNN replied.

The following cases and specimens were shown:—

Mr. DEVEREUX MARSHALL: Epithelial Tumour of the Cornea.

Mr. MACKENZIE DAVIDSON: Foreign Body Localised in the Lens by means of X Rays and successfully removed.

Mr. HOLTHOUSE and Dr. BATTEN: Tumour of the Lacrymal Gland.

Dr. BATTEN: Congenital Symmetrical Tumours of the Lacrymal Gland.

Mr. C. J. AYRES: Drawings of Tumours of the Caruncle.

Mr. S. STEPHENSON: Deposits on the Intermarginal Space of the Lower Lid.

HARVEIAN SOCIETY OF LONDON.

Gastric Dilatation.

A MEETING of this society was held on March 17th, the President, Dr. J. F. GOODHART, being in the chair.

Mr. W. ARMSTRONG (Buxton) read a paper on Gastric Dilatation. He described the acute form, drew attention to its onset during typhoid fever, acute rheumatism, &c., and advocated investigation of this factor in cases of tardy convalescence from acute disease. Chronic dilatation was divided into two groups: (1) obstructive; and (2) idiopathic. The first was due to pyloric obstruction either from malignant disease, cicatrix of gastric ulcer or fibroid thickening, or from any cause which depressed the body of the stomach without altering the position of the pylorus. The chief causes of idiopathic dilatation were: (1) habitual distension from chronic dyspepsia; (2) the taking of too bulky meals; (3) bolting of food and drinking of much fluid with meals; (4) failure of power in the central nervous system; (5) neurasthenia; (6) worry, anxiety, and overstrain, mental or bodily; (7) debility, atrophy, or fatty degeneration of the muscular coat of the stomach itself; and (8) the after-effects of febrile diseases, especially typhoid fever. If from failure of nerve power to cause contraction of the muscular coat of the stomach or if that coat became unable to respond to the nerve stimulus retention of fermenting food took place and various morbid products were formed, such as acetic and butyric acids, skatol, cresol, phenol, leucin, tyrosin, and various ptomaines and gases. Gastroptosis was mentioned as simulating or even causing gastric dilatation. The presence of the following symptoms often pointed to gastric dilatation: failure of nutrition, loss of flesh, morning depression, nervousness and "shakiness," oxaluria, some affections of the skin, migraine, vertigo, tetany, pseudo-Reynaud's disease, cardiac neuroses, false angina, irregular palpitation, spasmodic asthma, insomnia, and in some of the very severe cases loss of knee-jerks, pseudo-ataxia, and marked contraction of the pupils. The connexion of gastric dilatation with phthisis and chlorosis was alluded to, as was also the fact that a considerable number of cases of so-called latent or suppressed gout were really caused by gastric toxins. The frequent occurrence of moveable kidney in connexion with dilatation was also touched upon. The various methods of diagnosis were described and special stress was laid upon "splashing" as a reliable symptom, and also as to the exact information obtainable from washing out the stomach in the morning after long fasting. The indications for treatment were: (1) to distend the stomach as little and seldom as possible; (2) to promote evacuation of the lagging contents of that organ; (3) to keep down fermentation; (4) to regulate the dietary; and (5) to improve the tone of the general nervous system. With regard to the methods of treatment, the performance of gastro-enterostomy in very bad cases where all other methods had failed was spoken of, as was also a weak solution of Carlsbad salts as a gastric evacuant. The great importance of antiseptics was dwelt upon, Mr. Armstrong's own preference being for fuming hydrochloric acid, 6 to 12 drops in 6 ounces of water, and for small doses of calomel. Arsenic, strychnia, and kola were the best nervine tonics. The great value of lavage was recognised, but it was pointed out that it was only a palliative, not a curative, method of treatment. Massage was very valuable as a means of improving the general tone of the nervous system, but its local effects were disappointing. The modification known by the name of electro-massage was highly spoken of. Central galvanisation of the higher nerve centres was in some cases most valuable, but its internal application by means of the gastric electrode was deprecated; the faradaic current had, however, done good service when used in this way. The use of the needle bath and of packs of mustard bran over the sympathetic ganglia in the neck and the solar plexus was advocated. The advantages to be gained from mountain or high moorland air were mentioned. Mr. Armstrong laid stress on the necessity for extreme care in dietary and mentioned that while above all things the general nutrition must be kept up it was desirable to take as few meals as possible, giving the stomach time to empty itself. Bread, farinaceous foods, bulky vegetables, and milk were spoken of as being harmful in cases of dilatation; what little bread was taken should be twice baked or cut very thin and thoroughly torrefied. As little fluid as possible should be taken with meals, such fluid as was required for the purposes of the system being taken one hour before food.

Dr. HARE stated that while much admiring the paper as a whole there were one or two points in it to which he would venture to take exception or on which he would wish to make a few remarks. The first was that under the head of "Evacuants" Mr. Armstrong had made no mention whatever of the best and most efficient remedies of that class—namely, emetics. He was quite aware that emetics were nowadays rarely given, but thus a most potent remedy for good was neglected. They were much more efficient in the cases under consideration than was washing out the stomach by the stomach pump, for in the latter way the stomach was only rinsed out, while the strong contraction of the stomach

walls produced by an emetic not only emptied the viscus of its contents but squeezed out from the cells the morbid secretions which they produced. He had over and over again stopped by a single emetic vomiting which had recurred for weeks together. The form of emetic which he usually employed was from 20 to 25 grains of powdered ipecacuanha made up into an ounce draught; and though emetics were not pleasant remedies Dr. Hare said he would infinitely prefer taking one to having a pipe passed down his œsophagus. Another point was the suggestion that dilatation of the stomach was a cause of moveable kidney; to this he entirely objected; and the question of moveable kidney has been a pet one with him even so long ago as when many persons actually doubted the existence of "floating" or "moveable" kidneys. He pointed out how anatomically it was almost impossible for a distended stomach to displace a kidney; then that moveable kidneys were confined almost entirely to women—the reverse of what is the case as regards gastric dilatation; and that the right kidney, and not the one behind the stomach, is the one far the most commonly mobile.

Dr. ALEXANDER MORISON questioned the propriety of too curious an investigation of the dimensions of a dilated stomach and would hesitate to recommend gastro-enterostomy for any case not assumed to be dependent upon pyloric obstruction of an "organic" character. The anatomical conditions of the stomach and its double nerve supply from the pneumogastric and sympathetic nerves brought it into line with the heart as a hollow muscular viscus and he considered its dilatation should be treated as a rule upon the principles on which dilatation of the heart is treated—namely, by functional and postural rest, a limitation of its contents and the use of tonics found to affect favourably, that is, increase the power of, the visceral muscles.

Dr. EWART referred to the group of cases of confirmed dilatation, which should be distinguished both from the temporary dilatations due to atony, which were usually amenable to relatively simple treatment, and from the advanced cases of gastrectasia with atrophy of muscular fibre and partial replacement by fibrous tissue for which no medicinal or mechanical treatment availed and for which the aid of the surgeon should be called in. For the intermediate group mechanical treatment was available. Dr. Fenton Turck of Chicago had given much attention to the intragastric treatment and claimed for his revolving "stomach swab" or "gyromele" that it brought the agents of treatment, whether medicinal, faradaic, or merely mechanical, to bear upon every part of the internal surface. Dr. Ewart laid stress upon the indication of posture. Continued recumbency relieved the dilated fundus of any further downward stretching from the weight of its contents. More, however, could be effected by keeping the patient for long periods on an inclined plane, by planking the bottom of the bed and raising the foot end of it. This tended to raise the level of the depressed greater curvature and to lessen its distance from the pylorus. Where no contra indications existed skilful local kneading applied in a suitable direction at the proper interval after meals undoubtedly assisted the stomach in emptying itself through the pyloric outlet. After a time the patient should be allowed to get up, but not before an efficient abdominal belt had been applied

Dr. JOHN BROADBENT considered that dilatation of the stomach was a relative term, for abnormal size or capacity of this organ did not necessarily constitute dilatation, inasmuch as the stomach could be educated to hold and digest large or small quantities of food according to the habits of its owner. It was only when an atonic condition of its walls supervened, so that it could not completely empty its contents, that symptoms of dilatation set in (excluding, of course, cases of pyloric obstruction). The condition of atony was amenable to treatment, but if neglected might pass into one of real dilatation due to over-stretching of the muscular coat, recovery from which would be tedious and often incomplete. Among the causes of dilatation were chronic alcoholism, a neurotic disposition, and a life of worry or excitement. It was often difficult to differentiate between symptoms of gastric dilatation and those of neurotic dyspepsia, more especially in cases where pseudo-anginoid attacks and cardiac disturbances were the prominent features.

Dr. HERSCHELL entirely disagreed with Dr. Hare as to the fact that they might with advantage replace lavage of the stomach by the use of emetics, as in these conditions of dilatation the stomach had lost its muscular tonus and would not respond to such an agent.

Dr. HORACE MANDERS remarked that he thought there was a general agreement that there were two conditions of stomach having many similar symptoms and that it was a great point in treatment to prevent the atonic stomach from degenerating into the true dilated variety, that this was best done by preventing the ptomaines derived from the food from remaining in the stomach and thereby poisoning the system, and that the best means of accomplishing this object was by lavage and electricity combined.

Mr. JACKSON CLARKE advocated the operation of gastro-enterostomy in cases unrelieved by other methods of treatment.

The PRESIDENT expressed satisfaction at hearing the distinction between atony of the stomach and true dilatation so well brought out by the various speakers. He agreed with Dr. Morison that acute dilatations of the heart following long-standing hypertrophy were parallel to those of the stomach. He considered that dilatation of the stomach as the direct result of pyloric stricture, even when cancerous, was extremely rare. The dilatation occurred in consequence of muscular weakness and not on account of the stricture. Atony in many cases preceded dilatation. In the worst cases of dilatation good results might be attained by gastro-enterostomy. He was doubtful as to the good effects of posture, but could speak highly of the relief afforded by well-applied Martin's bandages. He did not think that moveable kidney was ever produced by the pressure of a dilated stomach, but that both conditions when coincident were part of a general neurosis.

Mr. ARMSTRONG, in reply, pointed out that an emetic could only be useful in very recent and temporary cases. He had tried the postural method recommended by Dr. Ewart without good result, as the retained fluid instead of passing through the pylorus seemed to bag out the stomach in the most dependent part; he had found the use of the belt much more effective in gastroptosis than in ordinary dilatation. Mr. Jackson Clarke's new indiarubber button seemed to him likely to be very useful in cases where operation was necessary. The nervous influence mentioned by Dr. Morison he thought to be the keynote to the cause of many cases of dilatation. He agreed with the remarks of the President concerning the desirability of distinction between atony of the stomach and real dilatation, but his difficulty had always been to find where the one ended and the other began.

SOCIETY OF ANÆSTHETISTS.

Deaths under Anæsthetics.—The Continued Administration of Nitrous Oxide Gas.

AN ordinary meeting of this society was held on March 17th, the President, Dr. DUDLEY BUXTON, being in the chair.

Mr. W. J. MACCARDIE (Birmingham) having narrated three cases of Deaths under Anæsthetics, a discussion followed in which it was pointed out that in the case of young children who had to undergo operations, even if brief, provided much blood was lost it was a dangerous practice to allow too prolonged a fast before the chloroform was given as otherwise the depressed vitality of the child was unable to stand up against the shock. In cases of adults the risks of bronchitis, renal complications, and rupture of diseased arteries reputed to follow the use of ether were, it was said, more imaginary than based upon accurate observation. Ether when given properly and in moderate quantity probably gave rise to none of these dangers, indeed was given medically to combat the very dangers which its use by inhalation was said to bring about.—Mr. CHAPMAN (Tunbridge Wells) narrated a case in which ether given to a man as an anæsthetic distinctly benefited a pre-existing attack of bronchitis, while Mr. TYRRELL believed also that asthmatics were relieved by ether.—Mr. CARTER BRAINE pointed out that posture was an important point in cases of removal of tonsils and post-adenoid growths under anæsthetics and he preferred having one tonsil removed before the adenoids were operated upon as it gave more air passage.

Mr. ALFRED COLEMAN detailed his Method of Giving Nitrous Oxide Gas through the nose so as to allow more prolonged operations on the teeth to be performed than was

possible when the ordinary methods in vogue were employed. His apparatus consisted of a nose-piece made to loosely cover the nose, fitting accurately at its base and connected with a flat tube also adapted to fit accurately over the forehead. To the latter is attached a piece of stout rubber tubing having at its further extremity a very lightly constructed two-way stopcock, which is connected with the ordinary gas-bag, a valve being placed between the two. The gas-bag is connected by a long tube with the gas-bottle. Over this nose-piece as well as over the mouth is placed an ordinary although somewhat large face-piece capable of covering alike the mouth and the nose-piece placed *in situ*. When the patient is fully narcotised this face-piece is removed and the anæsthesia maintained by the gas being allowed to traverse the nose. In fifteen cases the average period of anæsthesia was about two minutes, in one case five minutes, thirteen teeth being extracted. The same principle has been adopted by Mr. Coleman to the giving of ether, nitrous oxide, and air, and a similar plan was suggested for giving chloroform dosimetrically.

Mr. HARVEY HILLIARD contributed a paper on the Prolongation of Nitrous Oxide Anæsthesia in Dental Practice. His plan is to give nitrous oxide gas in the ordinary manner and when consciousness is lost the face-piece is removed at the commencement of an expiration and a soft gum elastic silk tube of the size of a No. 7 catheter and six inches long is then passed into the nose. Its distal end is like an *à boule* male catheter and is solid up to the orifice which is half an inch from the point. The proximal end is expanded to receive the conical attachment of tubing in connexion with the gas cylinders. By a simple arrangement the foot controls the supply of gas to the ordinary face-piece as well as to the nasal tube. As soon as the nasal tube is passed, although the face-piece is again placed over the patient's face, yet the stream of gas is deviated from it to the nose-tube and so completes narcosis and maintains it as long as is required after the face-piece is finally removed and the operation is in progress.

Mr. S. A. T. COXON (Wisbech) described a further and different method of prolonging Nitrous Oxide Anæsthesia during operations upon the mouth. His plan was to employ a metal tube which is held in the mouth after the ordinary method of producing narcosis had effected anæsthesia. To obviate the cooling of the mouth which experience had shown to occur when gas was thus pumped into the buccal cavity Mr. Coxon had adopted the use of a metal coil, through which the gas passes and which is placed in water of the required temperature.

The PRESIDENT, while congratulating the writers of the three papers, said his experience of the use of a nasal catheter in connexion with the prolongation of anæsthesia in operations on the mouth was not in its favour, as in so very many cases stenosis or complete blocking of one or both nostrils occurred, and it was often difficult to pass the catheter at all or to avoid hæmorrhage in the attempt. He had employed Mr. Coleman's method with conspicuous success, having easily obtained an anæsthesia of four and a half minutes, during which time fourteen teeth were removed. He entered a caution against the prolonged anæsthesia being used as a means of introducing multiple extractions of teeth as experience had shown that such operations were open to grave objections.—Mr. PATERSON said that his trial of Mr. Coleman's apparatus led him to approve the principle, although he believed the actual apparatus could be improved. The catheter method was not, he contended, free from disadvantages—for example, the obvious difficulty of its rapid introduction and the impossibility of properly sterilising it after or during use.

PATHOLOGICAL SOCIETY OF MANCHESTER

Pernicious Anæmia.—Perityphlitic Abscess of Cæcal Origin.—Rhabdomyosarcoma of the Kidney.—Exhibition of Card Specimens, &c.

A MEETING of this society was held on March 9th, the President, Mr. C. E. RICHMOND, being in the chair.

Professor DRESCHFELD read a paper on the Changes met with in the Spinal Cord in Cases of Pernicious Anæmia.

Mr. SOUTHAM mentioned a case of Perityphlitic Abscess due to Perforation of the Cæcum by a Foreign Body. Upon opening the abscess a concretion containing a pin in its centre came away in the pus. This was followed by the formation of a fæcal fistula, which was subsequently closed by a plastic operation, and it was then found that the fistula communicated with the cæcum, the appendix being quite healthy. Reference was also made to two similar cases, in each of which a perforation was found in the cæcum, the appendix being normal. It was pointed out that though in most instances of suppuration in the neighbourhood of the cæcum the appendix was at fault, yet in a small proportion of cases an abscess in this situation was of cæcal origin.

Dr. EURICH described a specimen of Rhabdomyosarcoma of the Kidney taken from the left kidney of a child, aged two years, with congenital absence of the left suprarenal capsule. The tumour consisted of islets of sarcomatous (round-celled) tissue separated by strands of spindle elements. Within these groups were small ducts, according to some authorities derived from the Wolffian bodies. Striped embryonic muscle was found comprising a hard nodule in the middle of the tumour, besides a few isolated fibres scattered throughout the growth. A delicate film of similar embryonic striped muscle covered part of the posterior aspect of the tumour close to the origin of the latter from the kidney.

Mr. HENRY IRVIN showed a preparation of a Peculiar Double Intestinal Anastomosis from Malignant Disease.

The following card specimens were shown:—

Mr. COLLIER: Large Gall-stone from the Intestine.

Mr. LAKIN: Extra-uterine Pregnancy Ruptured into the Right Broad Ligament.

Mr. SMALLMAN: Old Intra-capsular Fracture of the Neck of the Femur associated with Chronic Rheumatoid Arthritis.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—The Use of Quinine as a Substitute for Ergot in Midwifery.—The Cervix Uteri and the Attitude of the Fœtus in Leopold's Sections.—Congenital Teeth.

A MEETING of this society was held on March 9th, Professor A. R. SIMPSON being in the chair.

Dr. OWEN C. MACKNESS (Broughty-Ferry) showed a Missed Abortion from a multipara who conceived on June 1st. On Aug. 10th she had a fairly severe uterine hæmorrhage but without pain and the os remained closed. The hæmorrhage continued for seventeen days. At the beginning of October she noticed that her breasts, which up to this time had been enlarged and contained milk, were becoming quite flaccid; while her abdomen, which, as was always the case with her in the early months of pregnancy, had increased a good deal in size, was gradually returning to its normal proportion. On Dec. 10th she noticed a slight reddish-brown discharge, which continued on and off till Dec. 30th, when after two pains the specimen was expelled. There was only very slight hæmorrhage. The placenta was apparently fatty. The ovum probably ceased to grow soon after the hæmorrhage in August, but was not expelled for four months later.

Dr. F. W. N. HAULTAIN showed Tuberculous Fallopian Tubes removed from a patient aged fifty-two years. Also Uterine Appendages from a young woman who had never menstruated. Also a photograph of a large Ovarian Tumour which weighed 83 lb. and was removed successfully.

Dr. J. W. BALLANTYNE exhibited a photograph of a child without Arms and with very Short Legs, each foot having three toes, and a photograph of a child without Radius and Thumb.

Professor SIMPSON showed a Dermoid from a sheep attached by a Hair to the Uterus; the kidney on that side was absent. Also a soft Fibroid from a woman, aged fifty-two years, with Inversion of the Uterus. Also a skiagram of a Naegele Obliquity shown at the Moscow Congress by Professor Budin, of Paris.

Dr. OWEN C. MACKNESS read a paper on the Use of Quinine as a substitute for Ergot in Midwifery. The disadvantages of ergot are various. Its preparations are very unreliable in potency and action, different preparations showing variable results, and sometimes they are practically inert. Its taste is nauseous and if a large dose is given it may cause vomiting. Ergotin is difficult to keep; pills made from it rapidly deteriorate; a hypodermic solution even when made up with antiseptics, soon goes wrong and its injection into the muscles produces considerable pain.

Ergot produces a tetanic contraction of the uterine muscles with occasional increases of violence; there is no complete relaxation between the spasms as in ordinary labour pains (Lauder Brunton). It is dangerous, therefore, to the mother and in a high degree to the child as it interferes with the placental circulation and may thus asphyxiate the child. It is also said to cause hour-glass contraction of the uterus. Quinine, on the other hand, has certain advantages. It can be easily administered in the form of a pill, which will keep for any length of time without deterioration; it is tasteless in this form and has no tendency even in large doses to produce vomiting. Its action is more certain in that there is no variability in its composition, while the pills, if properly prepared, are easily soluble in the acid gastric juice, so that it acts rapidly. As a rule, its effect is seen at the outside in twenty minutes after administration. The chief advantage of quinine is that it does not produce tetanic contraction of the uterine walls, but merely increases the strength of the labour pains, while relaxation occurs in the intervals just as in normal labour. This fact has been verified over and over again. It is especially of use in those cases where delay is due to inertia uteri pure and simple—i.e., when the inertia is caused by the general exhaustion of the patient or by the actual want of power in the uterine muscles and where there is no obstruction present in the passages or special cause in the fœtus. Dr. Mackness has found quinine of service in primiparæ when the pains were flagging by giving fresh tone and stimulating them anew, so that instrumental interference was not required. The action of quinine is not always certain, yet he requires to use forceps less seldom, and cases that have before always required forceps have under its use been completed without their application. He used four-grain pills of the sulphate, two being given at once and one repeated in an hour and again after another hour's interval. No headache, deafness, or tinnitus have been observed in any of the large number of cases in which he has used them. Ergot, however, is specially of use after labour, as in post-partum hæmorrhage. Ergot in small doses is useful in the continued hæmorrhage of threatened abortion.—The paper was discussed by Professor SIMPSON, Dr. JAMES RITCHIE, Dr. HAULTAIN, Dr. BARBOUR, Dr. J. W. BALLANTYNE, Dr. HAIG FERGUSON, and Dr. LACKIE.—Dr. MACKNESS replied.

Dr. FREELAND BARBOUR read a paper on the Cervix Uteri and the Attitude of the Fœtus in Leopold's sections—"Uterus and Child." Leopold maintains that these sections give no support to the view that the cervix is taken up so as to form part of the cavity in which the ovum lies, either mechanically by dilatation or physiologically by differentiation. There are two views. One is the purely mechanical process; the growth of the ovum during the latter months of gestation causes dilatation or opening out of the upper part of the cervix and thus contributes to the size of the cavity in which the fœtus lies. This implies shortening of the cervix. The other view is more recently brought forward by Bayer. He believes that the cervix contributes to the lower pole of the uterine cavity by a process of growth, its mucosa being converted into a decidua and its muscular fibres being transformed into that of the lower uterine segment. This might be called physiological; it implies a process of differentiation of the mucous membrane of the cervix. This latter view is based on insufficient data. Franqué, of Würzburg, collected records of 117 sections of pregnant uteri, 26 of uteri in labour, and 75 from the puerperium. He noted the length of the cervix and of its vaginal portion, the position of the reflection and of the firm attachment of the peritoneum, the thickness of the wall and the condition of the mucosa with the attachment of the membranes. His conclusions are that the os remains closed during pregnancy unless pains are present and there is no constant difference between the length of the cervix in primiparæ and multiparæ. The length of the cervix at the various months of gestation varies within certain limits. It grows slightly in length in pregnancy. There is no evidence of its being taken up to form part of the cavity in which the ovum develops. In labour it does not become essentially elongated, the elongation from stretching being counteracted by shortening from dilatation. The firm attachment of the peritoneum which marks the upper limit of the lower uterine segment rises higher as pregnancy advances. The relation of the bladder is variable. The development of a contraction ring in normal labour and its presence in anatomical specimens he considers established. He has never found cervical mucous membrane extending over the lower uterine segment. Leopold in his work accepts the conclusions arrived at in Franqué's paper. In studying the attitude and position of the fœtus Leopold describes nine cases from the sixth month to full time; of these four are breech and five head presentations. This large proportion of breech cases strikes attention and it is noted that these are the ones from the earlier months, from the sixth to the ninth lunar months. The five head presentations are from the end of the ninth lunar month to full time. It is interesting to note that of the four breech presentations two of them were diagnosed as vertex presentations during life, the change to breech evidently occurring during the agony, the cause of death being eclampsia in both. The cord may have some effect in producing a position of the legs when one leg becomes hitched over it and might thus affect the presentation. One of Leopold's cases is from a case of placenta prævia where turning had been performed. It shows the graduated wedge which is of value in plugging and dilatation. But at the same time it brings out its weakness where the cervix is very rigid. Leopold draws attention to the fact that where the os externum is rigid and grips the upper part of the thigh the breech does not get down on the placenta so as to compress it and stop bleeding. It would be better, therefore, in a similar case to dilate with a bag first, so as to allow the breech to descend, or to rupture the membranes high up. Another procedure is to pull down both legs on turning. Of the head presentations, one shows some undoing of the flexion of the child during pregnancy, somewhat comparable to what occurs during the second stage. But this has quite evidently resulted from the uterus having been removed from the body and frozen, not frozen *in situ*. In a case of justo-minor pelvis the occiput of the child looked directly to the left while the back was to the left and front, and Leopold says that this section raises the question whether the trunk or the head rotates first. But this can evidently be put down to the fact that this fœtus was dead in the uterus and therefore limp. The evidence from sectional anatomy, so far as it goes, is all in the line of making internal rotation, a movement primarily of the head and determined by the form of the pelvis as modified by the soft parts. A section of a rickety pelvis shows the head not extended and that the sagittal suture is near the symphysis and the posterior parietal bone is the more prominent.—Professor SIMPSON and Dr. J. W. BALLANTYNE made remarks on the paper and Dr. BARBOUR replied.

Dr. J. W. BALLANTYNE read notes on three additional cases of Congenital Teeth. In the first case, which was one of face presentation, there was a little difficulty in diagnosing the presentation owing to the presence of the teeth. There were two, the upper central incisors; one was well developed, the other was poorly developed. The child is now sixteen months old and has eight incisor teeth, the congenital teeth remaining. These latter were larger than the others, not mere shells of dentine as in similar cases. In the second case the teeth eventually sloughed out and the alveolar process became necrosed, causing the death of the child. In the third case it was the two lower central incisors which were cut. They were moveable in their sockets and the alveolar process for about three-quarters of an inch was elevated three-eighths of an inch above the level of the gums on either side and was also moveable rocking backwards and forwards. Below this large process was an exostosis in the middle line of the symphysis menti which disappeared later. The mobility and elevation of the alveolar process afterwards disappeared and the teeth at the same time became fixed in their sockets. The child at six weeks showed signs of syphilis and was treated with mercury. At the same time the teeth became soft and gelatinous and very easily removed. Microscopically the typical dental structures could be recognised.—Dr. HAIG FERGUSON and Dr. JAMES RITCHIE mentioned instances of the same condition.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Malaria.—Ankylosis of Hip and Sacro-iliac Joints.—Resection of Vasa Deferentia.

A MEETING of this section was held on Feb. 25th, the President, Dr. J. M. PURSER, being in the chair.

Dr. J. B. COLEMAN exhibited blood from a case of tertian ague, showing the different stages of development of the Plasmodium Malariæ. The patient was a soldier, who had returned from India six months ago, and who was admitted to hospital with well-marked tertian intermittent fever. The specimens were fixed by immersion for about half an hour in a mixture of equal parts of absolute alcohol and ether. They were then stained first with alcoholic solution of eosin and afterwards with concentrated watery solution of methylene blue. Mild quotidian fever is due to the simultaneous presence in the blood of two generations of the tertian parasite or three generations of the quartan, each group being twenty-four hours older than the preceding one. The effect of quinine was to prevent the development of the young plasmodia.

Professor O'SULLIVAN also showed specimens of the Malarial Parasite. The patient was a medical man who had lived in Bengal and had contracted a simple tertian ague in December, 1896. The examination of the blood was confined to a single attack which was allowed to run its course without treatment. Shortly before the next attack was due the patient took quinine and although the attack occurred in a mild form there were very few parasites to be found in the circulating blood and shortly afterwards they had entirely disappeared. The fit began at 1 P.M. on Saturday, Dec. 18th; blood was taken at 2 P.M., 4.45 P.M., and 11.45 P.M. on Saturday, and at 9.30 A.M. on Sunday. Specimens taken at 2 P.M. (temperature 102° F.) showed chiefly a delicate ring form of half or less than half the diameter of a normal red corpuscle. The ring was circular or slightly oval with a thickening at one side extending over one-third of the circumference and a small deeply-stained nodule opposite to the centre of the thickening. In a few cases the ring showed no thickening or nodule. In addition there were some segmentation forms containing from seventeen to twenty spores in two rows, and pigment, which was in some cases diffused in coarse granules through the body; in others, collected in a ball in the centre. In the next two specimens (4.45 P.M., temperature 103·2°, sweating stage, and 11.45 P.M., temperature 98·5°) nothing but ring forms were to be seen, showing, however, signs of further development—e.g., pigment granules in the thickened part and formation of a small, clear body, staining lightly with methylene blue at the side of the thickening. In some cases two rings and even three were found in the same corpuscle. These joined at a point in their circumference at the edge of the thickening. In the specimens taken at 9.30 A.M. on Sunday no ring forms were found; the thickening had developed into a pigmented body as large as, or larger than, the original ring, traces of which with its nodule could often be made out. The specimens were fixed by heating to 115° C. and were stained with methylene blue and eosin.—The exhibits were discussed by the Secretary (Professor MCWEENEY), Surgeon-General POTTER, Dr. PARSONS, and the President of the Academy (Dr. BENNETT).

Dr. J. KNOTT made a communication on a specimen of Complete Osseous Ankylosis of Hip and Sacro-iliac Joints on one side. The pelvis also presented the special deformity formerly described by Professor Naegele, of Heidelberg, as the Pelvis Oblique Ovata. Professor Naegele's experience of this variety of pelvic deformity was that of the difficulty to which it gave rise during parturition, which had been the means of drawing his attention to it. He had never found any external cicatrisation, had never been able to obtain a history of caries, had never known the condition to be diagnosed during life, and had found it to be invariably fatal to both mother and child. It had been one of the many triumphs of the Dublin School of Obstetric Surgery that the existence of this pathological condition was first discovered during life in the Rotunda Hospital and by the late Professor Sir Edward Sinclair, of the Dublin University.

Mr. TOBIN read the report of a case of Prostatic Hypertrophy which he had treated twenty months ago by resection between ligatures of a half inch of the vas deferens on each side. The patient had the usual symptoms and at the time of the operation had not micturated without the help of a catheter for three months. He was discharged from hospital fairly well in three weeks. He now stated that although he did not lead a temperate life he had no kind of urinary trouble since he was discharged from hospital and that his sexual functions were quiescent. A digital examination per rectum found the prostate very small. A catheter passed after micturition showed the bladder to be empty. The testicles had not diminished in size and were, as far as one could judge, normal. Testicular feeling was present. On each side below the point of resection the vas deferens was swollen into what might be called a retention cyst the size of a small walnut. Fluid drawn from one of these swellings was found crowded with active spermatozoa. If the improvement was due to the resection of the vasa deferentia Mr. Tobin could see no way in which the operation could act, since no atrophy of the testicles had occurred, except by inducing a quiescent state of the prostate gland by cutting off the seminal fluid from the regions where its presence had a stimulating effect.—Dr. KNOTT, Dr. BENNETT, and Professor MCWEENEY discussed the communication.

SECTION OF SURGERY.

Gunshot Fracture of the Humerus.—Tuberculous Disease of the Hip.

A MEETING of this section was held on March 4th, the President, Sir WILLIAM THOMSON, being in the chair.

Mr. M'ARDLE brought forward a case of Gunshot Fracture of the Humerus in which a perfect result was obtained by free incision over the point of lodgment of shot and wadding and subsequent free irrigation after fixation on an angular splint. The points which Mr. M'Ardle accentuated were: (*a*) the first dressing should be complete, however collapsed the patient; (*b*) immediate fixation of the limb; (*c*) circulation in the limb should be restored by irrigation—the temperature of the fluid may reach from 106° to 110° F.; and (*d*) that all the procedures should be carried out under chloroform.—The case was discussed by Sir WILLIAM THOMSON, Mr. T. MYLES, and others.

Mr. TOBIN referred to six cases of Tuberculous Disease of the Hip in an early stage treated by osteotomy of the femur, passing obliquely from the lower border of the great trochanter to the lesser trochanter. He claimed for them that in every instance (1) complete union of the fracture had taken place within six weeks; (2) the progress of the disease had been quickly arrested, as instanced by the subsidence of swelling and the non-formation of abscess; and (3) in three of the cases after six months, and two after nine months, the patients were able to walk long distances without support and with only a slight limp, and showed no tendency to relapse. The sixth patient, who had been operated on only six weeks before, was going about wearing a Thomas's splint.—Mr. LENTAIGNE, Mr. M'ARDLE, and others discussed the cases.

SECTION OF MEDICINE.

Pneumothorax.—Cystinuria.—Acromegaly.

A meeting of this section was held on March 11th, the President, Sir GEORGE F. DUFFEY, being in the chair.

Dr. FINNY communicated a case of Idiopathic Pneumothorax without Effusion, in which, after complete recovery and resumption of manual labour, a second attack came on with a similar absence of fluid effusion and again followed by recovery. The patient was a stableman, aged eighteen years, who had not been ill previously and had had no cough or pulmonary trouble. The first attack occurred on Nov. 3rd, 1897, and the second on March 3rd, 1898. The onset in both attacks was sufficient to keep him from work and physical examination readily discovered air in the left chest, stretching the pleura to its fullest limits and displacing the heart to the right mammary region, and yet the patient made very little complaint and did not consider himself ill enough to go to the hospital. All through the attacks there was absence of fever, quick pulse, or constitutional disturbance, and the respiration was easy after one or two days. No special treatment was called for and gradually the air was absorbed.—Dr. A. R PARSONS, Dr. KNOTT, Dr. R. TRAVERS SMITH, and Professor E. H. BENNETT discussed the case.

Dr. WALTER SMITH drew attention to three curious Perversions of Metabolism: (*a*) alkaptonuria, due either to presence of pyrocatechin, uroleucic acid, or homogentisic acid; (*b*) diaminuria—i.e., the occurrence of diamines (cadaverin, putrescin) in fæces and urine; and (*c*) cystinuria. Few cases of cystinuria are upon record, probably not more than 75 in all, since the first recognition of cystin by Wollaston nearly ninety years ago. Two cases have come under Dr. Smith's observation—viz., in 1890 and 1897. The first case occurred in a boy, aged eight years, in good health. The odour of the urine was

fragrant; the reaction was faintly alkaline; the sediment was slate-coloured. Cystin crystals were found rather sparingly in this deposit, associated with phosphatic crystals and calcium carbonate. The second case was that of a woman, aged about fifty years, who consulted Dr. Smith for rheumatic pains. The urine was faintly acid and the white sediment consisted almost wholly of cystin in elegant hexagonal crystals, insoluble in acetic acid and soluble in ammonia. The true formula of cystin is $(C_3H_6NSO_2)_2$. It has no relation to uric acid. The probable antecedent of cystin in the body is cystein, a soluble base. Cystinuria is frequently associated with diaminuria, and both are possibly due to a common cause—viz., an intestinal mycosis. Hence the therapeutical indication is to disinfect the intestine.—Mr. M'CAUSLAND, Dr. J. W. MOORE, Professor E. H. BENNETT, and Dr. W. G. SMITH took part in the discussion.

Dr. W. J. THOMPSON read notes of a case of Acromegaly, in the course of which he said that since Marie in 1886 first described the disease little advance had been made towards discovering its cause. It occurs more frequently in females than in males, and in the former is associated with menstrual disturbance. It follows anæmia, influenza, the exanthemata, rheumatism, syphilis, and traumatism; it frequently comes on without any cause and occurs at all ages from fourteen months to seventy years. The symptoms are now well known—viz., hypertrophy of the bones of the hands, feet, and lower part of the extremities, and the cranial and facial bones, with subcutaneous thickening, kyphosis of spine, enlargement of nose, ears, and lips, and optic disturbance. The thyroid gland is often hypertrophied, rarely the thymus. The pituitary body is constantly found affected—in about 90 per cent. of all cases it is enlarged and diseased, and in about 10 per cent. diseased but atrophied. The diseases embraced almost every form of tumour—viz., sarcoma, adenoma, glioma, &c.—hence, from the lesions of this body very little light is thrown on this disease. Similar changes are found in pituitary bodies not clinically associated with acromegaly.

Reviews and Notices of Books.

The Year book of Treatment for 1898. London: Cassell and Co. Pp. 483. Price 7*s.* 6*d.*

THIS is the fourteenth annual issue of this useful publication and it well maintains the standard of its predecessors. The aim has been as heretofore to present the busy practitioner with a readable digest of the progress made in the domain of therapeutics during the past year and the editor is to be congratulated on the success of his endeavours. The list of contributors is a lengthy one, but the different articles are well arranged so that too much prominence is not given to any one subject.

The advances in the treatment of diseases of the heart and circulation are considered by Dr. G. A. Gibson, Lecturer in the Edinburgh School of Medicine. He draws attention to the application of the serum treatment in acute endocarditis and considers that the results which have been attained are encouraging and should lead to the employment of the anti-streptococcic serum in these hitherto hopeless cases of disease. The mechanical treatment of circulatory diseases also receives due notice.

Dr. Schorstein contributes a capital paper on Diseases of the Lungs and Organs of Respiration, laying stress on the preventive measures which have been adopted against tubercle. The reports on "the new tuberculin" of Koch are of course criticised, but the inevitable conclusion is drawn that "the few months that have intervened make it impossible to draw any definite conclusions as to the value of the remedy."

The section on the Treatment of Nervous and Mental Diseases is in the hands of Dr. E. S. Reynolds, of Manchester, who directs special attention to lumbar puncture, to the treatment of epilepsy by opium and bromides, the results obtained at epileptic colonies, the relationship of syphilis to tabes, and the treatment of ataxia by systematic exercises. Dr. H. P. Hawkins writes on Diseases of the Stomach, Intestines, and Liver. He remarks that "the past year cannot lay claim to any marked advance in the treatment of abdominal disease by drugs or medical means. It shows, however, a steady widening of the sphere of abdominal surgery. Physicians are placing more reliance on surgical aid. The surgeon appears on the scene at an earlier point of the illness and the successes gained are proportionately greater." We believe that Dr. Hawkins gives expression to the general opinion of medical men who are in touch with large hospital experience. Diseases of the Kidneys, Diabetes, &c., are considered by Dr. F. D. Boyd, of Edinburgh, attention being drawn to the successful trials of artificial serum in disease of the kidneys.

Amongst other contributors are Dr. A. E Garrod on Gout, Rheumatism, and Rheumatoid Arthritis; Dr. Sidney Phillips on Infectious Fevers; Dr. Dawson Williams on Medical Diseases of Children; Dr. Dudley Buxton on Anæsthetics; Mr. W. J. Walsham on Orthopædic Surgery; Mr. Reginald Harrison on Diseases of the Genito-Urinary System; Mr. Malcolm Morris on Diseases of the Skin; and Dr. Patrick Manson on Tropical Diseases. The section on General Surgery is in the able hands of Mr. William Rose and Mr. Albert Carless. A large number of subjects are touched upon, the remarks on the Surgery of the Abdomen being especially interesting. Dr. Herman writes the article on the Diseases of Women in his usual thorough manner. Well worth perusal are his comments on the bacteriology of the female genitals. The book concludes with a summary of the Therapeutics of the Year 1896-97, chiefly with reference to new remedies, by Dr. Tirard.

Manual of Gynæcology. By D. BERRY HART, M.D. Edin., &c., Lecturer on Midwifery and Diseases of Women, Surgeons' Hall, Edinburgh, &c., and A. H. FREELAND BARBOUR, M.A., B.Sc., M.D. Edin., &c., Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh, &c. With 13 Lithographs and 381 Woodcuts. Fifth Edition. Edinburgh and London: W. and A. K. Johnston. 1897.

THE appearance of a fifth edition of this manual sufficiently testifies to its popularity and usefulness. The authors say that it has been carefully revised and brought up to date and that the portions dealing with operative gynæcology have been in great part re-written and illustrated by new plates. We should say that the strong points in the work are, first, that it deals fully with the anatomy and physiology of the female pelvic organs; and, secondly, that there are few, if any, parts of the subject on which some information will not be found. It therefore gives the beginner a sound foundation on which to build up his knowledge and constitutes for the advanced student and for practitioners a reasonably complete work of reference. The clinical and practical side of the subject, however, does not seem to us so satisfactory. Thus if we turn to the account given of retroflexion, a common condition requiring to be considered, we find under the head of "Symptoms" "weakness in the back, symptoms of chronic pelvic peritonitis, painful defecation, leucorrhœa, dysmenorrhœa, menorrhagia, sterility, abortion." It is true the authors say "that the symptoms are not due to the lesion immediately but to other pathological changes consequent on and associated with it." That they do believe that pathological changes of a serious type are "consequent on" retroflexion of the uterus is nevertheless plain from what follows. Thus the "leucorrhœa is due to chronic inflammation of the mucous membrane" (caused by the retroflexion), "menorrhagia forms one of the prominent symptoms." 'The reproductive function is variously and seriously affected." "As the result of the displacement there is passive congestion of all the tissues of the uterus; this leads in the first instance to a simple hypersecretion of mucus, which gradually passes into chronic inflammation." On the

contrary we believe that there is ample evidence to show that the relation between retroflexion and the symptoms named is accidental and not causal, and, further, we believe it to be the fact that a majority of the teachers of gynæcology in London medical schools are of this opinion. Indeed, it appears to us that, whatever may be the cause of it, the gynæcologists of the London schools do not in this book receive that attention to which the vast clinical material at their disposal entitles them. The authors at the end of their work make a list of English text-books of gynæcology other than their own, but omit from the list two at all events which are largely used and enjoy a considerable popularity. Some of the works also mentioned in the list of "modern" English text-books are twenty or thirty years old and therefore practically obsolete at the present time.

Children under the Poor-law: their Education, Training, and After-care, together with a Criticism of the Report of the Departmental Committee on Metropolitan Poor law Schools. By W. CHANCE, M.A. London: Swan Sonnenschein and Co., Limited. 1897. Price 7*s.* 6*d.*

AT the present time, when public attention is so much directed to the subject of the education of pauper children, any contribution is of value, and the one before us is all the more welcome as coming from the pen of a gentleman who, as secretary of the Poor-law conferences, has been intimately mixed up with the various movements of later years. The introductory chapter deals with the important historical aspect of the question from the great year of Poor-law reform, 1834, to the present time. A perusal of this chapter reminds us of a fact which is too apt to be lost sight of—namely, that although perhaps there may still be a good many matters needing reform, nevertheless very great advances have been made in the care and custody of pauper children since the date referred to. The chapters which follow deal with Workhouse Schools, District and Separate Schools, Cottage-home Schools, and the use made of Public Elementary Schools, the last-named being a system which answers at the present time so admirably in country districts where workhouses are usually few in number. Two chapters are devoted to the Boarding-out System, which is now becoming so popular that, as the author mentions, "the dangers which surround it need to be carefully pointed out." To those interested in the welfare of these children we would specially commend the chapters on After-care and the various employments in life open to pauper-trained children, which are not, by the way, any too numerous.

The appearance of this work will do much to counteract the erroneous impressions produced by the departmental inquiry into the metropolitan Poor-law schools. Looking back through the softening vista of time upon the storm of resentment produced by the report of that committee, it must be admitted that the subject of pauper education was approached with considerable bias—one might almost say prejudice—against large schools and in favour of boarding out. This is a matter for considerable regret and inevitably weakens the force of that otherwise excellent report. Had the committee approached all the different Poor-law systems of dealing with children with more of a judicial spirit they would probably have concluded that each system had its merits and defects and that each was capable of use and abuse. If mal-administration and deficiencies in the executive lead to cases of poisoning amongst children in big schools, so also will it in the boarding-out plan. If *insufficient inspection* leads to cruelty in a big school, how much more will it do so in the case of boarded-out children? It is after all the want of adequate inspection which the inquiries of the committee revealed more than anything else.

We heartily commend this work as a fair and complete account of the educational needs and after-care of children under the Poor-law which should certainly be in the hands of all those to whom belongs the responsibility of providing for this large and important section of the community.

A Text-book of Zoology. By T. JEFFERY PARKER, D.Sc., F.R.S., and WM. A. HASWELL, M.A., D.Sc., F.R.S. Two vols. London: Macmillan and Co. 1897. Price 36*s.* net.

IN their preface the authors claim that "in spite of its bulk the present work is strictly adapted to the needs of the beginner." From our experience of former works by Professor Parker we quite expected to find this claim made good, nor were we in any way disappointed. The system adopted is to describe as many animals as possible in detail and to use them as types or examples of those which follow. The examples selected are those most easily obtainable and they are described in a plain, clear, homely way which leaves the impression that the authors really care more to instruct their reader than to convince him of their own profundity. The work begins with an introduction, in which the principles of classification are defined, and this is followed by a section on the structure and physiology of animals, at the end of which the authors state their intention to recognise twelve phyla. Of these twelve phyla, into which the animal kingdom is divided, eleven are treated of in the first volume. Section II. is devoted to the Protozoa, and Amœba, Didymium, Euglena, Monocystis, and Paramœcium are described as examples of the various classes; the mutual relationships of the chief groups of Protozoa are discussed at the end. The sponges occupy the phylum Porifera, and Sycon is taken as the example; they are separated from the phylum Cœlenterata which occupies Section IV. This phylum is divided into four classes: (1) Hydrozoa with Obelia as a type; (2) Scyphozoa with Aurelia; (3) Actinozoa with Tealia; and (4) Ctenophora with Hormiphora. The authors, in our opinion, do well to altogether discard the term "Vermes" and to distribute the animals which formerly were included under that name among the five following phyla: (1) Platyhelminthes: (2) Nemathelminthes; (3) Trochelminthes; (4) Molluscoida; and (5) Annulata.

Planaria is described as an example of the first of these phyla, Ascaris of the second, Brachionus of the third, Bugula, Phoronis, and Magellania of the fourth, while the Annulata are not described until after the Echinoderms, the animals chosen as examples of them being Nereis and Lumbricus. The phylum Echinodermata which comes between the Molluscoida and Annulata is richly supplied with examples; these are Asterias, Echinus, Cucumaria, and Antedon. The phylum Arthropoda succeeds that of Annulata and here we are glad to find a good and well-illustrated account of Apus, in addition to which Astacus and Periplaneta are taken as examples. The Mollusca form the last phylum dealt with in this volume, the types described in detail being Anodonta, Triton, Sepia, and Nautilus. We highly commend the authors' thoughtfulness in giving a full and separate index to each volume.

The second volume is devoted to the phylum Chordata and commences with a description of Balanoglossus and its allies. The authors lean to the view that if these animals are not the existing representatives of ancestral Chordates they are at least a greatly modified branch of the base of the chordate tree; at the same time they point out that by many zoologists their chordate affinities are altogether denied. The tunicates are next dealt with, Ascidia being taken as an example of the class and illustrated by several of Herdman's figures. Amphioxus is described in some detail and its anatomy is made more clear by excellent

sections and diagrams; its development is paid special attention to. The next fifty pages are devoted to a description of the chief organs and tissues of craniate animals, and this is followed by an account of the Cyclostomata and Pisces, the latter being exemplified by a detailed description of the dogfish and trout. The transition from the fish to the amphibians is prepared by an account of the dipnoan Ceratodus in which several of Günther's figures are reproduced. The frog is taken as the chief amphibian example and we cannot help wishing that the artist had been allowed to prepare a new process block to illustrate the external features of the common grass frog; the one borrowed from Mivart's book is hardly up to the standard of the illustrations of the rest of the work. The type selected for the reptiles is the lizard and at the end of the description of the class there is a short section on extinct reptiles. An account of the pigeon forms a good introduction to the study of birds and the illustrations of this portion of the book are enriched by several photographs of skeletons and stuffed specimens from various museums. The way for the mammals is prepared by a description of the rabbit, after which the various orders are dealt with and the external forms of many characteristic specimens figured. The different systems in the anatomy of mammals as well as their development are then described and the section closes with a discussion on the mutual relationships of the Chordata. The next section deals with the distribution of animals and includes a coloured chart showing the zoo-geographical regions of the world. The Philosophy of Zoology occupies the next section and is followed by one on the History of Zoology, which records the chief work of the leaders of the science from the time of Aristotle to that of Weismann. The work ends with a guide to modern zoological literature in the form of an appendix. The illustrations are very numerous and usually good. They have been gathered from many sources and also contain a large number of original drawings by Mr. M. P. Parker, whose name is a sufficient guarantee for the accuracy and artistic merits of his work. We can conscientiously recommend this book to anyone taking up the study of zoology and we deeply regret that one of its authors should not have lived to see the success which we believe it is bound to command.

The Essentials of Experimental Physiology. By T. G. BRODIE, M.D. Lond. Pp. 231. 177 Illustrations. London: Longmans, Green, and Co. 1898. Price 6*s.* 6*d.*

THIS work, which is complementary to Schäfer's "Essentials of Histology" and to Halliburton's "Essentials of Chemical Physiology," is intended for the use of students and describes the experiments that are suitable for class demonstrations. In the selection of these the author has in great measure followed the lines laid down in Professor Burdon Sanderson's "Syllabus of Lectures" published in 1879 and adopted in the course of advanced practical physiology under Professor Halliburton at King's College. The exercises fitted for elementary and for advanced students respectively have been distinguished by different kinds of type, so that the text-book is adapted for a complete course of experimental physiology. The work is especially valuable from the beautiful tracings and curves, which are all original and have been prepared by the author for this work.

The description of the mechanism and arrangement of the apparatus for the various experiments is simplified and rendered absolutely clear by numerous drawings and diagrams, some of which are from other sources, but many appear here for the first time. The work admirably supplies students of physiology with a reliable and much required guide to experimental work and will assuredly long remain a recognised handbook on the subject.

LIBRARY TABLE.

Some Incidents in General Practice. By AUGUSTIN PRICHARD, Surgeon. Bristol: J. W. Arrowsmith. 1898.—The late Mr. Augustin Prichard, an obituary notice of whom appeared in our issue of Jan. 15th, was connected with the medical profession for a period of over sixty years. That being so his reminiscences might be expected to be interesting to the younger generation, and this little book bears out the expectation. Written in a pleasant and simple manner it gives a life-like picture of a state of society long since passed away and is full of sound wisdom. Mr. Prichard's remarks upon suicide may well be pondered upon by magistrates and those silly but well-meaning people who see in the suicidal temperament only a condition to be petted. Referring to an instance of a silly girl who jumped from Clifton Suspension Bridge he says: "She should have had two or three weeks hard labour instead of being petted and handed over to her friends." The book is an interesting record of a long, useful, and honourable life, and well worth the study of the present-day practitioner.

The Medical Annual and Practitioners' Index, 1898. Bristol: John Wright and Co. Pp. 697. With 127 Illustrations and 30 Plates.—The sixteenth and latest volume of this useful book of reference is well up to the standard of those which have gone before and presents two new and welcome features. The editors have done wisely to secure Mr. S. G. Shattock to write an atlas on Bacteria Pathogenic to Man and to include it, with its well-executed plates, in this publication. The first half of this atlas appears in this year's instalment. Since medical men have often an imperfect knowledge of the law as it affects them, the addition of recent legal decisions which either affect the medical profession directly or have reference to public health is a step in the right direction and one, it is to be hoped, that will be continued in future years. The illustrations are well done and mention may be made especially of a series of photographs showing the operative obliteration of the deformity in Pott's disease which is appended to an article by Messrs. Tubby and Jones. The names of the contributors and a study of the articles prove that this is a publication which should be in the hands of every practitioner who wishes to keep abreast of the advances in medicine and surgery with the least possible expenditure of time and trouble.

The Story of Life in the Seas. By SYDNEY J. HICKSON, D.Sc., F.R.S., Professor of Zoology in the Owens College, Manchester. London: George Newnes, Limited. 1898. Price 1*s.*—This is a volume of the Library of Useful Stories, a series of popularly but accurately written little books upon scientific subjects. It commences with a short but clear account of Oceanography and then passes to describe the various fauna—those of the shallow water, those of the surface, and those of the deep seas. Then follows a most interesting account of Commensalism and Parasitism and the book ends with a speculative chapter upon the Origin of the Marine Fauna. Dr. Hickson, though he allows the difficulty of the question, considers that the evidence at our disposal points to the origin of life having had its seat in the shallow waters.

Doctor and Patient: Hints to Both. By Dr. ROBERT GERSUNY, Director and Principal Visiting Surgeon of the Rudolfinerhaus, Vienna. Translated with the permission of the author, by A. S. LEVETUS, with a preface by D. J. LEECH, M.D., F.R.C.P. Lond., &c., Professor of Pharmacology in the Owens College and Victoria University. Bristol: John Wright and Co. Price 2*s.* — This is an admirable little work written upon the same lines as "The Profession of Medicine," by Dr. Charles West. It deals with various ethical points and will be found of great value to patients

as well as to medical men. Many disagreeables would be avoided if both classes took to heart Dr. Gersuny's remarks upon Gossip, Chapter vi.; Harmful Influence of the Persons about the Patient, Chapter vii.; and Corruption of Doctors by the Public, Chapter ix. Dr. Gersuny's remarks upon medical aid societies and their medical officers—"medical clerks," as he calls them—are a striking confirmation of our Special Commissioner's observations as published in our series of articles, "The Battle of the Clubs." He thinks that the evils will cure themselves by the very fact of their existence but not "before a new generation has arisen."

Lexique-Formulaire des Nouveautés Médicales (Dictionary of Recent Advances in the Medical Sciences). By Professor PAUL LEFERT. Paris: J. B. Baillière et Fils. 1898. Pp. 336.—This little book consists of alphabetically-arranged paragraphs giving condensed but satisfactory descriptions of many of the new methods, new words, and new substances which have of recent years been introduced in medicine, surgery, obstetrics, materia medica, &c. The inclusion of such headings as Agglutination des microbes, Bacille ictéroide, Iodothyrine, Ligature apophysaire, and Protargol, shows that the work is brought well up to date; under Vaccination the author quotes a regulation relative to the vaccination of French soldiers which is dated Nov. 1st, 1897. The book will be found useful for reference, and in particular it supplies a want which is not uncommonly felt by those whose reading includes either French and German medical periodicals or extracts translated from them.

Constipation in Adults and Children, with special reference to Habitual Constipation and its Most Successful Treatment by Mechanical Methods. By H. ILLOWAY, M.D., Formerly Professor of the Diseases of Children, Cincinnati College of Medicine and Surgery. New York and London: Macmillan and Co. 1897. Pp. 495. Price 17*s.*—So much splendid work is being done in America at the present time, and the standard has been raised at Johns Hopkins University and elsewhere to such a high level, that it is a real disappointment to come across such a book as this American volume. The book is divided into two parts; 184 pages are devoted to a description of the conditions leading to, and associated with, constipation and the rest to treatment. The author is at pains to show the need of elaborate mechanical and electrical devices in order to cure constipation. That massage is of value in some few cases and even necessary will no doubt be granted, but it is certain that massage need never, and will never, take the prominent position assigned to it in this volume in the treatment of constipation. The worst feature of the book is the illustrations, many of them being in thoroughly bad taste. The literary level of this production may be judged by the following: "Cloacina is very exacting and demands the full concentration of the mind upon the duties then to be performed" (p. 96), and "remotus (*sic*) causa tollitur effectus" (p. 185).

Sanitation in Srinagar: A Review of Four Years' Work, 1893–96. By ASUTOSH MITRA, L.R.C.P., L.R.C.S. Edin., F.C.S. Pp. 12.—This pamphlet is drawn up somewhat in the form of an official report giving an account of the first introduction of sanitary reform into Srinagar, the capital of the valley of Kashmir. This city has over 25,000 houses and a population of more than 120,000 persons. It extends along both banks of the River Jhelum, the water of which becomes excessively polluted in its course through the city. Great mortality was caused by an epidemic of cholera which visited Kashmir in May and June, 1892, and the author, who is chief medical officer of Kashmir and president of the Srinagar municipality, was asked to draw up a practical scheme of public sanitation. His recommendations were of the most approved modern kind and although difficulties were encountered at first through the prejudices of the population and the heavy expenditure, yet so much was accomplished that when cholera again visited the place in 1895 it was kept within very small proportions indeed.

JOURNALS.

The Journal of Physiology. Edited by MICHAEL FOSTER, M.D., F.R.S., and J. N. LANGLEY, Sc.D., F.R.S. Vol. XXII., No. 5. London: C. J. Clay and Sons. March, 1898. Price 5*s.*—The original articles contained in this part are six in number—viz.: 1. J. L. Bunch on the Origin, Course, and Cell-connexions of the Viscero-motor Nerves of the Small Intestine, with seventeen figures in the text. The main conclusions arrived at are that the small intestine in the dog, cat, and rabbit shows normally a regular rhythm of contraction and dilatation varying in frequency and extent but averaging in the dog twelve per minute; that small doses of morphia produce no appreciable effect upon the tone—i.e., increased or diminished contraction; that nicotine in most dogs occasions systolic and in some dogs and all cats diastolic tone of the small intestine; that elimination of the peripheral end of the cut vagus produces no effect on the movements of the small intestine, whilst stimulation of the cut splanchnic usually produces in dogs systolic tone and in some dogs and all cats diastolic tone; that the splanchnics probably contain in all animals two sets of nerve fibres, one tending to produce increased contraction of the intestine, the other set diminished contraction; and that the nerve fibres pass to the splanchnic from the anterior roots of the dorsal and lumbar nerve, from the sixth thoracic, to as far down in some instances as the fifth lumbar nerve. 2. An Intestinal Plethysmograph, by Arthur Edmunds, B.Sc. 3. The Effect of Resistance to Secretion upon the Percentage of Salts in Saliva and upon the Work Done by the Gland, by O. F. F. Grünbaum, B.A., B.Sc. The author of the article found that when a gland is made to secrete against resistance it secretes much less saliva in a given time and the percentage of salts in it increases. 3. On Hepatic Glycogenesis, by F. W. Pavy, M.D. Lond. This article is a criticism on statements made by Dr. Paton in a previous number of the journal. 4. The Precipitation of Carbohydrates by Neutral Salts, by R. A. Young, M.D. Lond., showing that the salt precipitation method can be quite as easily applied to the colloid carbohydrates as to proteids and can be equally well used for the purpose of discriminating one from another. 5. Hydrolysis of Glycogen, by M. Christine Tebb. Lastly, the proceedings of the Physiological Society at the meeting of Feb. 12th are given.

Recueil d'Ophtalmologie. Sous la direction des Docteurs GALEZOWSKI et CHAUVEL. 3me. Série. 20e. Année. No. 1. Janvier, 1898.—The articles contained in this number are: (1) M. E. Goblot: La Vision Droite; (2) Dr. Galezowski: De la Thermométrie Oculaire et de son Utilité dans le Diagnostic de certaines Maladies des Yeux; (3) Dr. G. Valois: Retards de Cicatrisation après l'Opération de la Cataracte; (4) Dr. Strzeminski: Complications Oculaires de Zona Ophtalmique. The Proceedings of the Ophthalmological Society of Paris complete the number.

OTTERY ST. MARY COTTAGE HOSPITAL.—The fourth annual report of the Ottery St. Mary Cottage Hospital showed that 53 patients had been admitted during 1897, against 58 in the preceding year. The total income for the year was about £400 and the expenditure £437.

WALTON CONVALESCENT HOME.—The annual report of this convalescent home stated that during the past year 340 patients have been admitted, a larger number than in any previous year. The income amounted to £858 and the expenditure was £848.

Analytical Records
FROM
THE LANCET LABORATORY.

(1) PROTARGOL; AND (2) IRON SOMATOSE.

THE ELBERFELD FARBENFABRIKEN CO., LIMITED. LONDON AGENCY: 19, ST. DUNSTAN'S-HILL, E.C.)

CLINICAL results of the employment of protargol in the treatment of gonorrhœa have already appeared in THE LANCET.[1] We have recently had an opportunity of examining this interesting compound in the laboratory. It is a yellowish powder, quite soluble in water, containing silver in combination with a definite protein. The solution is not decomposed by dilute salt solution or by weak hydrochloric acid, but on adding strong hydrochloric acid chloride of silver is obtained, and on filtering the mixture the protein substance is found in the filtrate free from silver. The solution of protargol is powerfully bactericidal and is specially applicable to the treatment of wounds and to broken surfaces where pus largely occurs. As a germicide it appears to yield excellent results, particularly in the destruction of gonococci. Iron Somatose is a cocoa coloured powder which dissolves in water to a dark brown solution. The compound is quite tasteless. Our analysis showed it to be a compound of proteoses with iron, the former amounting to about 80 per cent. and the latter calculated as ferric oxide to 4·5 per cent. This interesting iron compound presents not only the iron in a form that is easily assimilated and appropriated by the blood but also a proteid substance of admitted nourishing value. It possesses none of the drawbacks of the ordinary inorganic iron compounds; it is not astringent and would appear to have a laxative rather than a constipating effect. In a pamphlet before us the results go to show that the health and general condition of patients to whom iron somatose was administered improved quickly, the weight of the body being increased and the amount of hæmoglobin in the blood being decidedly augmented. Iron somatose is indicated in anæmia and chlorosis, in which conditions it is said to have given very encouraging results.

SPECIAL BREAD.

(JOHN BROWN, 45, HAMILTON-STREET, GREENOCK.

The analysis of this bread confirms the claims made in regard to it as to its special dietetic properties. Microscopical examination shows that it is composed of a mixture of pulse and cereal foods, which considerably augment its nitrogenous value. On further examination the bread proved to contain a rich proportion of soluble carbohydrates due to the use, in the course of preparation, of well-known digestive agents. The bread is free from rough, irritating particles of bran. The taste is sweet and nutty. The loaf possesses a special food value and is wholesome and nutritious.

WELCH'S GRAPE JUICE.

(THE WELCH GRAPE JUICE CO., WESTFIELD, NEW YORK U.S.A. AGENCY: TAYLOR AND WEAVER, 12, LANCELOTS HEY, LIVERPOOL.)

Judging from the flavour and general characters of this juice there can be little doubt of its genuineness, while care is evidently taken in the selection of the grape and in the preparation of the juice. We found, however, that the juice contained a comparatively large amount of salicylic acid as preservative. This recourse in our own experience is not in the least necessary and may lead to harm in some persons. Grape juice is very easily sterilised and preserved in that condition for almost any length of time in bottle. In that case it has the advantage of being entirely free from antiseptics which might prove objectionable.

CROWN STOUT.

(MOUNTJOY BREWERY, RUSSELL-STREET, DUBLIN.)

The nourishing qualities of stout are due mainly to a comparatively high proportion of malt extractives, which, consisting principally of maltose and dextrine, offer little task to the digestive organs. The sample before us is marked by an excellent proportion of these extractives, while at the same time the alcoholic strength is by no means excessive. The results of analysis were as follows: malt extractives, 9·0 per cent.; mineral water, 1·38 per cent.; alcohol, by weight 4·62 per cent., by volume 5·78 per cent., equal to proof spirit 10·13 per cent. The mineral matters consisted almost entirely of soluble potassium phosphate. The stout was in good condition, ripe, yet free from undue acidity, and possessed a characteristic malty flavour.

THE COMPOUND SYRUP OF GLYCERO-PHOSPHATES.

(ROBERTS AND CO., 76, NEW BOND-STREET.

The composition of this preparation is in accordance with well-ascertained principles and facts. Glycero-phosphoric acid, as is well known, is a constituent of lecithin—a material existing in the nervous tissues and blood corpuscles—which plays an important part in the nutritive processes. It has been observed that in neurasthenic patients under the same diet and regimen certain among them eliminated relatively large amounts of unoxidised phosphorous compounds, which was attributed to the excessive destruction of lecithin. In such a case phosphorus is indicated and the best form for this purpose has proved to be glycero-phosphoric acid, lecithin itself, as we have just remarked, being a glycero-phosphoric compound. The preparation submitted to us contains the glycero-phosphates of calcium, sodium, potassium, magnesium, and iron as principal ingredients, but other things are present, such as pepsin and diastase, which add to the value of the formula. It is a bright red syrup, of plum-juice taste, but slightly bitter, and having an acid reaction. It is obviously a compound which requires care and skill in preparation and from the satisfactory appearance of the syrup submitted to us these factors are evidently well borne in mind. The syrup was quite clear and free from sediment. The combination is said to have given excellent results in practice.

PICTET'S ETHYL CHLORIDE.

(AGENTS: THOMAS CHRISTY AND CO., 25, LIME-STREET, E.C.)

In THE LANCET some years ago we ventured to predict that excessively low temperatures would ultimately be employed as a means of separating and purifying substances intended for medical purposes. The above liquid is an instance of this means of purification now being undertaken in practice. The properties of ethyl chloride are well known. By reason of its rapid and uniform evaporation it is employed very conveniently as a local anæsthetic in minor surgical operations. An important improvement has recently been made both in the construction and the shape of the glass vessel containing Pictet's ethyl chloride. The vessel is made so as to stand upright and on the shoulder a screw valve is attached connected with a bent glass tube, which dips to the bottom of the liquid when the vessel is in the upright position. To obtain a spray the valve is simply removed and a jet of liquid is then ejected by the pressure of its own vapour within the bottle. On turning the vessel upside down the flow of liquid soon ceases as in this position the end of the syphon tube projects above the level of the liquid. The curved glass tube is useful also in preventing the capillary opening from getting blocked.

[1] THE LANCET, Dec. 18th, 1897, p. 1628.

THE LANCET.

LONDON: SATURDAY, MARCH 26, 1898.

THE Vaccination Bill, like every other mundane thing, has its merits and its demerits. Beginning with the latter, they are mostly faults of omission and we have no doubt that in Committee amendments will be brought forward which will at least give the Government an opportunity of adding to the Bill what it should have originally contained. The reason for the omissions is probably to be found in Mr. CHAPLIN'S anxiety to get the measure successfully through Parliament without any very lengthy discussion. In presence of large political questions both home and foreign the time that can be devoted to a public health subject even so important as vaccination is not likely to be great. It will, however, be the duty of the profession to try to influence the course of events in such a way as will make the Bill a more useful and more workable means for preventing the spread of small-pox than it would be in its present form. And in saying this we are far from expressing any out-and-out condemnation of the Bill. So far as it goes there is, indeed, little to find fault with, but it does not go nearly far enough.

No fact in medical science has been more fully established by world-wide experience than the power of re-vaccination to renew the protection against small-pox given by primary vaccination. It is, indeed, universally recognised that as a supplement to the original operation performed in infancy its repetition is a practical necessity if all the protection is desired which the Jennerian prophylaxis is capable of affording. It is hard to see why Mr. CHAPLIN in his Bill should deliberately shirk so important a fact. If vaccination is to be a matter of State concern there is no getting over the conclusion that it ought to embrace re-vaccination as well as primary vaccination. No possible reason can be adduced for dealing with the one and omitting to deal with the other. The facts, indeed, are not in dispute excepting by those who deny any virtue to vaccination. Nor could any opportunity more suitable than the present be found for remedying this great defect in all previous vaccination laws passed in this country. The introduction of calf lymph, accompanied as it must be by the final disappearance of that greatest though almost imaginary bugbear, the fear of the inoculation of syphilis, puts the Government in an exceptionally strong position with regard to legislation for re-vaccination. We care little here for details as to compulsion or non-compulsion. The essential point is that before a child leaves school the parent should not only have brought before him, directly and formally, his duty to secure the further protection of his child against small-pox, but the opportunity of carrying out that duty should be definitely given to him. Whether this should be done by the public vaccinator systematically calling at schools or by domiciliary visitation intimated beforehand is of little moment. Neither is it of moment to insist here on repeated penalties or single penalties or any penalty at all. There would surely be no hardship in asking that in the event of a parent getting timely notice of the proposed visit of the public vaccinator, and of the parent's desiring that his child should not be vaccinated, he should be put to the trouble of going to a magistrate or a registrar to declare and record his "conscientious" objection, and so save the vaccinator an unnecessary visit. No matter how slight the pressure towards re-vaccination might be, even, indeed, if there were absolutely nothing but the formal offer of the immediate performance of the operation by the public vaccinator, the parent with the child being present, we are persuaded that a very large number of re-vaccinations would be done, and a correspondingly large amount of national protection against small-pox obtained. There are tens of thousands of parents who have a general belief in the need for re-vaccination, but before whom the question is never brought in concrete fashion at any particular day and hour. The actual meeting of the parent and child with the public vaccinator, prepared there and then to vaccinate, could not but be followed by a large increase in the vaccinal protection of the adolescence and manhood of the country. Moreover, it is easy to suppose that even parents who, fearing some risk to their babies, had paid a fine, or had had a fine paid for them out of the "defence fund" of the Anti-Vaccination League, might yet in the ten years or so of interval have had these fears removed, or have seen cause to fear small-pox more, and so have become willing that their sturdy boy or girl should undergo the little operation which they had objected to when the subject was only a puling child. This is the first and most important point on which the Bill requires amendment and, as we have said, the question of compulsion is of little importance here compared with the question as to whether the State shall or shall not for the first time in English legislation recognise that re-vaccination is a matter of Governmental and national concern. It is unnecessary here to do more than just refer to the defect which we pointed out last week—i.e., the failure of the Bill to transfer the administration of the law from boards of guardians to sanitary authorities and so do away with the conflict so often experienced in times of epidemics between those whose duty it is to quell the outbreak and those who have neglected the most important means of prophylaxis.

Still another point is that something should be done towards attaining greater uniformity in the amount of vaccinal protection conferred on children and towards the registration not merely of the fact of vaccination but of the amount of vaccination. Every vaccination certificate should state the number and area and perhaps also the foveation or non-foveation of the scars left by the operation, though this last requirement as to recording foveation would be troublesome to fulfil. Another question is as to the payment of vaccinators for this work of visiting children at their houses, either when sent for by the parents or when fulfilling the provision in the case of children who have reached the age of nine months without being vaccinated. Supposing that in a rural district the child lives

five or ten miles from the public vaccinator and that he goes only to find the door locked, or to be refused permission to vaccinate, or that, when at last he does get the vaccination done, he has to revisit in order to certify, how is he to be rewarded for all this work? Echo answers How? But the Bill answers nothing. The omission is so preposterous that it almost looks as if this part of the Bill were a *ballon d'essai*, launched by Mr. CHAPLIN in the expectation that some suitable guidance will be afforded him during its passage through Parliament.

The setting back of the "compulsory age"—if the term may be so used—may help to reconcile many parents to the operation, and it will make impossible many charges brought against vaccination as an alleged cause of skin eruptions and what not in the earlier months of life. In the march of an English generation through life, so eloquently described by Dr. FARR, many fall by the way even during the first year. Vaccination is not infrequently blamed for deaths in which it has no kind or degree of share and in delaying the operation till towards the close of the first year such blame will to that extent be rendered impossible.

The use of glycerinated calf lymph will have a similar tendency to render impossible some suspicions which, however unjust, have been largely fomented by anti-vaccinationists and have undoubtedly been a main factor in producing resistance to the present law. If a calf lymph vesicle be ruptured and irritated and fouled a sore arm may follow as before and no expedient can prevent occasional evil results from parental neglect and carelessness. But syphilis cannot be caused by calf lymph, erysipelas cannot be inoculated by such lymph sterilised by glycerine, and as the vesicles will not be opened by the vaccinator the risk of any subsequent infection will be correspondingly diminished.

The question of compulsion yet remains for consideration. Medical men who know how terrible a disease small-pox is and who know the value and safety of vaccination are apt to have little patience with parents who are so misled as to refuse to protect their children against variolous disfigurement and death. Medical sympathy is with the helpless children rather than with the chimerical alarms of the fathers of these children. But in so far as fears really exist, however unscrupulous and shameful may have been the means by which they were excited, they must have some heed paid to them, and having done his best to allay such fears and to make vaccination even a safer procedure than before, Mr. CHAPLIN cannot, we think, be blamed for deciding that no more than a single prosecution can be raised, and no more than a single fine exacted, with regard to any child. We cannot compel parents to be wise, and we cannot in some cases prevent their offspring paying the penalty of their unwisdom. The Anti-Vaccination League will be even less satisfied than the medical profession with the part of the Bill dealing with this question of compulsion. They desired that parental folly should have its full fruition. In this hope and purpose they have been baulked. Mr. CHAPLIN'S proposal is a compromise, but it has the merits as well as the defects of a compromise, and we are of opinion that it should be accepted as a genuine effort to settle a very difficult question between the rights of the individual and the rights of the State.

Leaving this matter of compulsion as it stands, the aim should now be to get re-vaccination provided for in the Bill, to get sanitary authorities appointed to administer the vaccination laws, to secure that work done by public vaccinators shall be paid for, and to have the amount as well as the fact of vaccination properly recorded with regard to every individual case.

THE criticism most commonly passed upon London by visitors whose lives are spent for the most part in Paris or Vienna or Berlin is that it is a dirty city, and for a nation which rather boasts of its cleanliness this criticism is undeniably galling, especially as it is impossible without palpable disingenuousness to deny its justice. London has many great merits. It is picturesque, it is gigantic, it is impressive. Its practical advantages over other cities are not inconsiderable. It is well-drained, and, on the whole, well built. Though its size is vast communication between its different parts is, on the whole, swift and easy. As a city of pleasure it has advanced rapidly towards the first position during the last twenty-five years, while as a city of business it has no rival. All this and more may be said in its favour but the original criticism still holds, it is not clean.

Can anything be done to make it clean? The practical difficulties are enormous but they ought not to be insuperable. We have only to compare the City with the West End in this respect to see that the problem is not insoluble if London as a whole were willing to expend the necessary care and money on it. The bill, no doubt, would be a heavy one, but when we consider the amount of expense that is entailed upon individuals by vestries who leave two inches of liquid mud to accumulate for half a day in the gutters or to lie in pools upon the roadways that cabs and omnibuses may have a source whence to bespatter the passers-by we cannot feel certain that the present system is not a false economy. If the shopman whose windows are plastered with mud from top to bottom, the lady whose clothes are at the mercy of every passing vehicle, together with all those whose business it is to clean cabs and carriages and vehicles of all descriptions, not to speak of horses, realised the amount of extra expense or labour entailed upon them by the condition of the London streets, they would agree that any extra money devoted to cleaning them would be well expended. Of course this argument applies with especial force to the West End, but there is much to be said for improving the street-cleaning throughout the metropolitan area if only because dirt is easily conveyed from one part of London to another by cart-wheels and horses and pedestrians and therefore one unclean district means a centre from which mud may be distributed in districts which are more thoroughly cleansed. The great problem with regard to the cleaning of London is unquestionably the paving problem. If London could decide upon one uniform pavement for its streets which should present a smooth and even surface the difficulty of cleaning would be greatly diminished. Asphalte is, perhaps, the paving which most nearly answers these requirements, and in the City the use of asphalte, as far as cleanliness is concerned, has been attended with most satisfactory results. But asphalte is

supposed to be very trying to horses and West and South London have to put up with wood or stone paving or macadam. Macadam and stone and wood paving where they are at all worn cannot be cleaned at all in any thorough sense where there is much traffic. The London vestries appear to realise this only too clearly in districts where these pavings prevail and as soon as rain begins to fall suspend the operations of street-cleaning until it is fine again. This system may be economical but it cannot be called efficient. It may, no doubt, be urged that the expense of cleaning the whole of London as thoroughly as, for example, the City is cleaned would be too heavy for the vestries to undertake or the ratepayer to bear. The staff required for the task would be enormous, while the mere machinery of additional carts and horses for removing the dirt which the sweepers collected would be a serious item. But this, after all, is a question of degree and though a clean London may be an utopian dream a cleaner London is not too much to ask for. The real crux of the problem, however, is still the question of pavement, and of that, so far, no solution seems to have been found. It may be questioned, however, whether some form of shoe might not be devised which would enable horses to use asphalte roads without unnecessary slipping and a consequent sacrifice of efficiency, though we may admit that it passes the wit of man to devise a shoe which shall be equally suited to all the different methods of paving which a horse may encounter in the course of half an hour's journey in London.

We have spoken only of the discomforts arising from this condition of affairs. There is, of course, another aspect of the question which is at least as serious, the sanitary aspect. Not merely are the streets of London a sea of mud in wet weather but even in dry weather they are highly unsatisfactory. When it is hot the wood pavements of the West End are admittedly insanitary and when it is windy the very air we breathe is charged with minute particles of dust and chaff and other and more undesirable matter. Here, too, it will be urged that in a great city there will always be dust and dirt and nothing will prevent their presence, but this matter also is one of degree and there is no fair reason why a nuisance of this kind should not be reduced to the smallest possible limits. It is absurd, for example, that every cab-rank in London should be daily littered with chaff which no one save the wind takes the trouble to sweep up. We should like to see some municipal reformer arise who would seriously take in hand the problem of the cleaning of London streets. He would be conferring a benefit not upon Londoners alone but upon all that vast population who from time to time find it necessary either for business or pleasure to visit London.

ACCOUNTS from all quarters agree that the epidemic of measles through which we are passing is one of unusual severity and extent. Practitioners find the cases are so numerous and acute as to occupy much of their time and care, and medical officers of health find that the mortality from the disease is spoiling the account they have to render of their stewardship and giving an exceptional severity to the mortality of the late weeks and months. Mr. A. E. HARRIS, the medical officer of health of Islington, reports 72 deaths in the fourth quarter of 1897, the largest number recorded for the same quarter in twelve years with two exceptions, 1888 and 1891, when 91 and 93 deaths respectively occurred. Mr. HARRIS reflects somewhat severely on the School Board teachers for failing to give effect to Article 148 (ii.) of the Code of the School Board of London, whereby the Public Health Department was undoubtedly deprived of valuable and early information of cases. It became necessary owing to the prevalence of the disease for the Public Health Committee to avail itself of its powers, under Article 88 of the School Code of the Education Department, to call on the School Board for London to close several schools. In an annotation in THE LANCET of March 12th we referred to a report by the medical officer of health of Blackpool on the epidemic of measles in that borough last year and both this report and that of Mr. HARRIS show that the mortality falls chiefly on children below five years of age. The Blackpool tables show that males are more subject to attack than females and that the mortality among them is greater.

Similar accounts reach us from all parts of the country and occupy a large amount of space in the columns of our daily contemporaries. Dr. REGINALD DUDFIELD told an interviewer of the *St. James's Gazette* that in Paddington more cases had occurred in two months of this year than in all the year 1897. He is reported to have said that measles and whooping-cough were the special diseases of childhood and caused more deaths between them than any other. In Mid-Cheshire upwards of 200 cases have occurred. In West Herts 1000 cases are known to exist. In Burton-on-Trent the Grammar School, girls' school, and Sunday schools have been closed. In Stretford (Manchester) 727 cases are reported and the prevalence of the disease is attributed to the carelessness of the public in regard to the disease. The medical officer of health, Mr. HESLOP, says that the epidemic there confirms the statistics of the Registrar-General, showing that 60 per cent. of the deaths from measles occur in children under two years of age and about 90 per cent. in children under five years. At Lancaster an epidemic affecting 1185 persons has been investigated by Dr. THEODORE THOMSON, of the Local Government Board. The cases occurred mainly in the first quarter of 1897. The deaths from Dec. 5th, 1896, to July 15th, 1897, were 51. Dr. THOMSON finds that schools were the chief medium of the rapid extension of the disease; that no cases were removed to isolation hospitals; that Sunday schools were not informed of the disease; that schools were not closed when they should have been; and that the arrangements for early information of cases from schools were not good. For such defects of information he reflects gently on the sanitary authority of the town and declares that the staff was insufficient for any more effective management of the epidemic. In Townhill, Dunfermline parish, 90 families are said to have been affected.

We have said enough to show that the epidemic is one which ought to make a deep impression on the public. The interruption to school work which it involves is in itself a great loss to the public. It is no slight matter in these days of costly public education to have the machinery of it stopped for weeks together by an epidemic of this sort. Besides, it cannot admit of much doubt that the schools themselves are the chief agents in disseminating the disease.

In London, indeed, a curious diversion of this responsibility has been attempted. BARNUM and BAILEY'S show happens to have been the chief popular entertainment of the winter season and it is in everybody's mouth that this show has been the *fons et origo* of the epidemic. The explanation is flippant and superficial. Most practitioners will recognise that a great proportion of their little patients have not been to "Olympia." Moreover, the epidemic had well begun before the show arrived. The high mortality from the disease in Islington was in the three months of 1897 before the show had opened. Possibly in some West-end parishes this exhibition may have been a factor in the case, but for the general diffusion of the disease in the provinces and in the metropolis it cannot be held responsible. Clearly we must look mainly to defects in our sanitary laws and in the sanitary management of our elementary schools. There is a want of cordial coöperation between the school authorities and the sanitary authorities and the sooner this is remedied the better. It is intolerable that our school system should be allowed to be a huge medium for the communication of dangerous diseases. Doubtless measles is a disease which is less easy to control than some others, but that it can be controlled to a great extent seems to be shown by the good effect of closure of schools in this epidemic even with very local and ineffective powers of notification. Apart from its public aspects the disease has been serious and interesting from a professional point of view. Measles is really a very acute disease. It has been not uncommon in the present epidemic to find a temperature of over 105° F. and for the appearance of the eruption to be preceded by several days of oscillating and sometimes severe temperature. The mortality has been large, but the wonder is that it has not been larger considering the "epidemic constitution of the season," as SYDENHAM would have said, and the nature of the disease. As we have previously pointed out, in several weeks the mortality from measles in the metropolis has practically equalled the combined mortality of scarlet fever, diphtheria, and whooping-cough. No disease seems to admit of beneficial guidance and control more than measles. Though so acute in its onset and attended with such high temperature and distressing cough, sometimes with hæmoptysis, it quickly subsides and leaves the patient practically well in a large proportion of cases. Medical practitioners whose work lies among classes that can take care of their children and have the intelligence to put them early under medical treatment never see such a great mortality arising from the disease as we have been speaking of, for under such circumstances the disease is rarely fatal. But such a fact only adds to the seriousness of the great mortality which has been reported lately week after week. We have said that the epidemic should make a great impression on the public, but we doubt whether it will do so, for the impressions produced by epidemics on the public are very evanescent. Even small-pox, with its horrible accompaniments and consequences, is soon forgotten when the actual risk of taking it is over. And measles is still more likely to be forgotten. We shall look with interest to the effect of this outbreak on public opinion as expressed through sanitary bodies and School Boards, and with some hope that these great authorities, on whom so much of the health and happiness of the public depends, will see their way to more hearty and effectual coöperation in the future.

Annotations.

"Ne quid nimis."

THE GENERAL MEDICAL COUNCIL: THE VACANT PRESIDENTIAL CHAIR.

THE death of Sir Richard Quain at this particular time has created a somewhat awkward situation for the General Medical Council. Under ordinary circumstances the business of the Council could wait for the ordinary May meeting, when a new President would be elected and everything proceed in its usual order. But several matters of consequence press at this particular moment and call urgently for an effective head. Chief of these is the request of the Government for the observations of the General Medical Council on the Midwives Registration Bill now before Parliament at the earliest possible convenience of the Council. As the Bill is down for a second reading on May 11th it is not surprising that the Government has sent a second communication to the Council requesting its early attention to this subject. Here arose the difficulty. The Council was not timed to meet, according to its own standing orders, till the end of May. A special meeting was clearly necessary. But power to summon a special meeting resides, according to the Act, in the President, acting either on his own motion or on that of eight members of the Council requisitioning him to this effect; unfortunately, the Council was without a President and the ordinary way of procuring a meeting was not available. The senior treasurer, Sir Dyce Duckworth, has risen to the occasion and has summoned the Council to meet for special business on Tuesday, April 5th, the special business being (*a*) the election of a President in succession to Sir Richard Quain and (*b*) to receive a report from the special committee on the Midwives Registration Bill now before Parliament. It is understood that the report of the special committee is nearly ready for the printer and will soon be in the hands of members of the Council, so that they will have the material for preparing a reply to the Government almost as soon as they meet. According to the standing orders no other business will be entered on at the special meeting but those named on the summons, "*unless the Council by resolution agree to consider such business.*" It is clearly necessary for the authority and influence of the Council that no delay should take place in the appointment of a President. It would not be difficult to name several members who would well befit the office and ably discharge its duties. By common consent Sir William Turner is one of the most capable members of the Council and would make a most efficient and courteous President. Few members have been so long on the Council and few have such a knowledge of its business or have taken such a hearty interest in it in all its details and departments. These are great qualifications and go far to outweigh the disadvantage of his residence in Edinburgh. To mention one more name, Mr. Bryant, who is known to have been Sir Richard Quain's lieutenant on many occasions and to have an excellent grip of the Council's business, would be a very satisfactory choice. The Midwives Registration Bill is the great subject with regard to which the public and the profession look to the Council for sound guidance. The occasion is a critical one. Time is telling in favour of something being done. The simple rejection of actual measures is not a course that can be always pursued with dignity. An evil exists, and if the Council can indicate to the Government a remedy which will not be worse than

the disease it will bring credit to the medical profession and dispose of a question which urgently needs settlement.

THE GOVERNMENT AND THE NEW FOOD BILL.

THIS new Bill, recently prepared and brought into the House of Commons by Mr. Kearley, Sir James Woodhouse, Mr. Horace Plunkett, Mr. Lambert, Mr. Nicol, Mr. Jeffreys, Mr. Channing, Mr. Cawley, Mr. Lough, and Mr. Maurice Healy, presents a different title from those of the Bills previously introduced. Instead of being cited as the Sale of Food and Drugs Act it is simply to be called the Adulteration Act, 1898. The new Bill is constructed almost exactly on the same lines as the comprehensive measure introduced by the same gentlemen in January, 1897, so that the views which we expressed in a leading article in THE LANCET of March 6th, 1897, apply equally to the new measure. As we said of the last Bill, the very comprehensiveness of the measure will invite, if we are not mistaken, considerable contention, and it is pretty safe to say that in its present form it will not have an easy passage through the House. We notice that in the new measure additional powers and duties are to be conferred on the proposed Board of Reference. According to the following clauses, these additional powers are: (*h*) to examine and report upon the composition of food and drugs and to describe, investigate, devise, and recommend methods for their examination; (*i*) to prescribe forms of certificates of analysis; and (*j*) to investigate and inquire as to new forms of adulteration, and to acquaint the Local Government Board with the result of such investigations for the information of local authorities or their officers.

SHOULD MEDICAL MEN ACT AS GUARDIANS?

THAT medical men may with advantage to the public act on boards of guardians there can be no doubt. These bodies are called upon to decide questions in which medical knowledge is of use and in filling up medical and nursing appointments they are able materially to assist their colleagues. Moreover, if the profession were more largely represented on these boards we should probably see fewer of the miserable pittances which now and then appear in our advertisement columns attached to some medical office connected with the Poor law—salaries, so-called, which are derogatory alike to employer and employed. On the other hand, medical men urge that their time is very fully occupied and that their calling is of an exacting nature, and also that in sparsely inhabited districts if a medical man acts as a guardian he may be precluded from acting in various medical capacities in connexion with the Poor-law. We have recently received an inquiry of this sort which raises the question whether a medical practitioner if he be elected a guardian is precluded from maintaining various official or semi-official relations with the guardians. Our correspondent writes as follows: "I am the medical officer's deputy to a Poor-law union and workhouse without salary and have been nominated a guardian of the same union. (1) Am I disqualified under Section 46 (I. d.) of the Local Government Act, 1894, from being elected or acting? (2) If the answer to this question be in the negative, should I be debarred from accepting a fee for certifying in lunacy at the request of a magistrate under the Lunacy Acts? or (3) from charging a fee for assisting the medical officer in an operation, such as administering chloroform and the like?" Our answer to each of these queries is in the negative. It has been held under the old law that a medical officer's substitute may be elected a guardian, and there is nothing in the Local Government Act of 1894 to alter this. This statute only debars anyone from acting as a guardian who is in receipt of a *fixed* salary or emolument from the poor-rate. The Poor-law Board, in point of fact, expressed the opinion that a medical officer's substitute may be elected a guardian. It is, therefore, reasonable to conclude that an *occasional* fee does not debar. As regards the second question, lunacy fees rest entirely with the lunacy justice, and it is only reasonable to apply the same argument. In point of law there is nothing, in our opinion, to debar our correspondent from acting as a guardian and continuing the same official relations as heretofore.

THE NEW PROFESSOR OF BIOLOGY AT OTAGO.

DR. BENHAM, so long known as the able assistant of Professor E. Ray Lankester in the department of Comparative Anatomy at Oxford, was entertained at dinner at Magdalen College on March 11th, on the occasion of his leaving England to assume the duties of Professor of Biology in the University of Otago, New Zealand. A numerous company, which included most of the science and medical teachers in Oxford, sat down to dinner under the chairmanship of Professor Vines, who gave expression to the regret of all at parting with so agreeable a colleague. On March 16th Dr. Benham's past and present pupils presented him with a handsome piece of plate. Dunedin is to be congratulated on having secured the services of so distinguished a man of science and the good wishes of all Oxford men follow him to his new sphere of influence.

THE DISAGREEABLE TASTE AND SMELL OF CERTAIN WATERS.

THE growth of green slime in water reservoirs is an occurrence which quite baffles the efforts of our water engineers and however pure a water may be this vegetable growth invariably takes place. The rapidity of its growth varies, however, in different waters. Everyone is familiar with the green slime that collects and accumulates on the walls of the cistern. This is not necessarily due to stagnation, for if water be passed for some time through a capacious glass tube without stopping the flow the same green growth occurs. The growth is essentially of vegetable character and is due to algæ and certain infusoria. It is this very growth upon the filter-beds upon which the efficiency of filtration, and especially the removal of micro-organisms, depends. Recent researches have shown that this growth is responsible for the objectionable taste and smell which characterise some waters occasionally. Mr. G. D. Jackson, assistant biologist, and Mr. J. W. Ellms, assistant chemist, of the Massachusetts Board of Health, have recently made an important experimental contribution to the subject, which shows that the peculiar odours and tastes of surface waters may be due, not always to decay, but to the presence of living or undecomposed micro-organisms, either animal or vegetable, in the water affected. This is not surprising when it is considered how characteristic are the odours of some of the larger plants and animals with which we are familiar. In an interesting series of experiments these investigators have been able not only to add to the evidence upon this point by showing that the natural odour of *anabæna* (a blue green alga) is due to a peculiar oily product, but also to draw a sharp distinction between the natural odours of the microscopical organisms found in surface waters and the odours produced by their decay. Thus of the diatomaceæ, the *asterionella*, *tabellaria*, and *meridion* possessed a natural odour ranging from aromatic to fishy, with no odour of decay. All the cyanophyceæ, including the *anabæna*, *rivularia*, *clathrocystis*, *cœlosphærium* and *aphanizomenom*, possessed not only a natural grassy mouldy odour, but gave rise also to an odour of decay comparable with that of a "pig pen." Other organisms, as the chlorophyceæ and infusoria, possessed natural odours, as of that of "fish," "ripe cucumbers," "clam shells," and "candied violets." The

anabæna is marked by a high percentage of nitrogen, sulphur, and phosphorus, and these elements would amply account for the production of an offensive smell produced on decomposition. There is, however, a marked distinction between the odours of growth and the odours of decay of the organisms occurring in surface waters. The usual cause of the disagreeable odours and taste occurring in potable waters is found in the presence of large numbers of certain microscopical organisms which secrete compounds of the nature of essential oils. There is no reason to suppose that these compounds are any more harmful than those which give odour and taste to fresh vegetables or to fish. But the "pig-pen" odour is produced by decay, and although the sanitary significance of these partially decomposed compounds in drinking water is yet to be determined analysis would indicate that their effect upon the general health would probably be prejudicial if it were not for the fact that they occur in such minute quantities. These products may even possess the highly toxic characters of certain alkaloids.

INDUSTRIAL OCCUPATION OF WOMEN AND INFANT MORTALITY.

AT a meeting of the Royal Statistical Society on the 15th inst., under the presidency of the Right Hon. Leonard Courtney, M.P., a very valuable paper was read by Miss Clara Collet, M.A., on the "Extent and Effect of the Industrial Employment of Women." The paper was based upon a careful analysis of the statistics of the occupations of females in England and Wales enumerated and tabulated at the five censuses in 1851-91. Contrary probably to general impressions Miss Collet shows that the proportion of females returned as following definite occupations was lower in 1881 and 1891 than in the three previous census years. The most remarkable change shown in these census returns is the decline in the proportion of women employed in agricultural and farm service, which was in 1891 only one-tenth of that recorded in 1851; marked decline was also shown in the proportion of women employed in silk, worsted, and woollen manufactures, and also in the proportion of seamstresses, owing mainly to the introduction of sewing-machines. On the other hand, an enormous increase has occurred in the proportion of women engaged in the teaching service and the proportion of those returned as tailoresses, mostly sewing-machinists, also shows a large increase. The paper gives special attention to the evidence afforded by available statistics as to the effect of the industrial occupation of women upon infant mortality. Miss Collet, while admitting that the industrial employment of married women with young children is an obvious evil, after an elaborate and careful investigation which we cordially recommend to the special attention of medical officers of health for industrial populations, corroborates the conclusion expressed some time since by Mr. Noel Humphreys, at a discussion on the subject, that the factory employment of women is not the main cause of the high rate of infant mortality in Lancashire and other industrial localities. Some very interesting tables are given in the paper showing that there is much more constant relation between infant mortality and the social condition of different town populations, measured by the proportion of domestic servants employed, than there is between the proportion of industrial occupation among women and infant mortality. The census returns do not, unfortunately, show separately the occupations of married and single women, which information is to a large extent necessary to the satisfactory elucidation of the problem dealt with in Miss Collet's paper; by an ingenious method, however, she is able to ascertain the minimum number of industrially employed women in each of the manufacturing populations to which her investigations are principally devoted. The result of these investigations has been to show that no constant relation exists even between infant mortality and the proportional employment of married women in industrial occupations. The effect of industrial employment of women, and even of married women, depends in great measure upon the conditions under which such labour is conducted, and it is not difficult to imagine conditions under which its influence upon infant mortality might be even beneficial, inasmuch as it would make possible better housing, a higher standard of home comfort, and generally more healthy surroundings. There are doubtlessly careful and careless mothers in all classes; but given this admission infant mortality appears to be mainly a class question and bears a far more constant relation to the wages or earnings of the parents than to the proportion of mothers engaged in industrial occupations, which is but one of the many factors which influence this complex question.

A QUESTION OF ANALYSIS?

THE members of the Town Council of the Borough of Maldon have recently availed themselves of an opportunity for expressing their views with reference to the subject of water analysis, and as these views are unfortunately very generally held, though not often so freely expressed, their erroneous character should, in the interest of the public health, be fully exposed. At the outskirts of the town there is a spring rising within a short distance of "some dangerous cesspools down twelve or fifteen feet below the surface," the water from which is piped to a central conduit in the town. This water enjoys a high reputation and is largely used for drinking purposes, being preferred by many to the public supply which is derived from an artesian well. A short time ago the council directed the surveyor to send a sample of the water to Dr. Thresh for analysis. Together with the sample he sent to the analyst particulars as to the source of the water and also mentioned that a cargo of London manure had recently been spread upon the field above the spring. The analytical results do not appear to have been satisfactory, since Dr. Thresh recommended the council to cut off the supply and pointed out to them the grave responsibility which they would otherwise incur. A small minority of the council wished to act upon Dr. Thresh's advice. The majority joined in reprimanding the surveyor for furnishing the analyst with particulars concerning the source. One remarked that "the analyst ought not to know where the water came from," whilst another considered it "a most outrageous thing that the water should be sent for analysis as this was. Surely the analyst could find out impurities without leading strings. Germs might have existed only in imagination in these circumstances." Ultimately, it was decided to send another sample of the water to Somerset House for an opinion which should be unbiassed by any knowledge of the source. It is greatly to be regretted that an assumedly intelligent body of men should be found to give expression to such views. It is obvious from the admissions of the councillors that the spring is in immediate proximity to most dangerous sources of pollution and the analysis evidently showed that traces of polluting matter were to be found in the water. At any time this contamination may become specific in character and a serious outbreak of disease result. Notwithstanding this and the terrible and recent experience at Maidstone, the council desire to avoid cutting off the spring and to shirk responsibility by getting a favourable analytical report from some one ignorant of the danger of pollution to which the water is exposed. It is certainly to be hoped that neither the analysts at Somerset House nor any other analyst will venture to express an opinion upon the

safety of a water without knowing something of the source from which it is derived. If chemists would make a rule of insisting upon being informed of the possible sources of contamination before giving a report, the public would soon begin to realise that other factors besides the analytical results have to be taken into account before a water-supply can be certified to be free from risk. The Maldon Council were wisely advised by Dr. Thresh and will incur the gravest responsibility if they do not promptly cut off such a dangerous source of supply.

THE ABSENCE OF COLLAPSE IN A CASE OF PENETRATING ABDOMINAL WOUND.

IN another column we publish a very remarkable case which recently came under the care of Dr. zum Busch at the German Hospital. To put the facts shortly the patient fell from his bicycle, breaking the handle-bar, and receiving a blow in the epigastrium. His brother, who had been riding in front of him, was also bruised. Both brothers walked some three miles to their home and then to the hospital, as the one who had been riding in front complained of his knee. When there the injury to the second brother was discovered owing to his suddenly turning very pale, upon which the house surgeon insisted upon undressing and examining him. The nature of the injuries is graphically described by Dr. zum Busch. That a man should be able to walk three miles when suffering from an injury of this magnitude is remarkable enough, but perhaps it is even more so that he should have been quite unconscious of having received any injury other than a slight graze on the chin and "possibly on the abdomen." But Dr. zum Busch quotes three other cases of a similar nature, and some fourteen years ago a patient was brought into St. Bartholomew's Hospital with a large portion not only of his abdominal wall blown away, but also a great portion of his stomach, by the explosion of a bottle of compressed gas. This man said "that he thought something had happened but he did not quite know what." He was perfectly sensible and only slightly collapsed. The cases reported by Dr. zum Busch are additional evidence of the extraordinary toleration which the abdominal cavity sometimes exhibits to very severe injuries when they are diagnosed and treated in the prompt and skilful manner reported in this instance.

ACTION AGAINST SOLICITORS FOR NEGLIGENCE.

A CASE was heard at the Durham assizes recently which is of interest both to the medical and legal professions. It was an action against a firm of solicitors for negligence. In November, 1893, the plaintiff, who was then a waitress at a café where she is now manager, was seized with typhoid fever, and her medical man informed the sanitary authorities and she was removed to the fever hospital. The fever was accompanied with distension of the abdomen which excited the suspicions of the nurses in attendance upon her. They informed two of the medical officers at the hospital and according to the plaintiff's account notwithstanding her protests they insisted upon examining her and then asserted that she was pregnant and she was turned out of the hospital. She was examined by her own medical man and two others, who all agreed that the charge against her was unfounded. She instructed the defendants to bring three actions, two separate actions for slander against the medical officers and a third against the corporation of Sunderland and the medical officers for negligence, breach of duty, and assault. The defendants agreed, she said, to take up her case on the chance of getting their costs out of the other side. They issued writs in February and March, 1894, and delivered statements of claim in August of that year, but had, she alleged, taken no further steps in the action. One of the medical officers made an offer of £100 and costs through a friend, but by their advice she refused to accept this amount. He had since died and some of her witnesses had also died or gone away and could not be found, and consequently her prospects of success in the actions were now very remote. The defendants denied that they had been guilty of any negligence whatever. They had not undertaken to conduct the action on speculation but, on the contrary, had told her distinctly that she must provide the funds or they would not act on her behalf. She neither provided the funds nor the evidence to enable them to comply with an order for particulars or to prove her case and would not allow them to settle the case on her behalf upon reasonable terms. The jury found a verdict in the plaintiff's favour for £50. The medical evidence, if any were given, is not detailed in the reports which have reached us. Such cases are most troublesome to the medical men concerned, but in this case in the absence of the medical evidence we are unable to comment further.

THE MANCHESTER CORONER ON MIDWIVES AND THEIR CERTIFICATES.

THE city coroner of Manchester has been investigating, as will be seen by our Manchester Correspondent's letter in THE LANCET of March 19th, the death of a child which was attended with peculiar circumstances. The child was born the day after the marriage of the parents. The mother was attended by a certified midwife, who gave a certificate to the effect that the child had only lived six hours and was prematurely born. The registrar refused to accept the certificate and so the matter came to be investigated by the coroner. The divisional police surgeon gave evidence. He had made a post-mortem examination. The birth was premature; the lungs had never properly expanded and death was caused by exhaustion. He said that it was impossible that the child could have cried. If artificial respiration had been practised no doubt the child would have lived. The grandmother said that she suggested that a medical man should be sent for, but the nurse said it was not necessary. The nurse denied that such a suggestion was made by anyone. So much the worse. The coroner was very severe in his remarks, reminding the midwife that she was only a nurse and not a doctor, and that it was her duty in any such case to have summoned a medical man or to have advised the people to send for one. The coroner would do well to forward copies of his depositions to the Home Secretary and to the General Medical Council, who both have this great evil under consideration. He would do well, too, to forward a copy to the Council of the Obstetrical Society, who have the responsibility of having given a certificate to this midwife. It is high time that some effective punishment should be enacted for midwives who fail to summon medical assistance in cases in which the life of either the child or the mother is at stake.

THE PRESENCE IN THE BLOOD OF FREE GRANULES DERIVED FROM LEUCOCYTES.

M. F. MÜLLER, an assistant in Nothnagel's clinic in Vienna, in 1896 described certain "small, generally round, colourless granules" which he found constantly present in the freshly drawn blood from healthy and diseased persons. These granules are readily distinguishable from blood plates. Dr. William Royal Stokes and Dr. A. Wegefarth conducted a series of observations in the bacteriological laboratory of the Health Department of Baltimore, and their results were published in the *Johns Hopkins Hospital Bulletin*, No. 83, December, 1897. The paper is now reprinted in pamphlet

form. After detailing their experiments the writers sum up as follows: "In the blood plasma and serum of man and many of the lower animals there are present varying numbers of granules which resemble the granules of the eosinophilic and neutrophilic leucocytes in size and appearance. After addition of dilute acids, dilute alcohol, &c., and subjection to body temperature, the granules of the leucocyte assume marked activity, and such treatment increases the number of granules present in these fluids. These free granules are almost certainly derived from the granular leucocytes. The filtration of the serum of the dog and rabbit through new Müncke porcelain cylinders removes its normal property of causing the agglutination and cessation of motility of many motile pathogenic bacteria and of destroying large numbers of these organisms. This property can be partially restored by adding a sediment consisting of leucocytes, free granules, and red blood corpuscles. Since the red blood corpuscles are not germicidal (Buchner) it follows that the restoration of the bactericidal property is due to the addition of the leucocytes and free granules, and that these cells can furnish a germicidal material." From these facts Dr. Stokes and Dr. Wegefarth evolve a theory of immunity but admit that the proof is extremely difficult to furnish since filtration of a sediment even through double filter-paper will allow leucocytes as well as granules to pass. They suggest that the bactericidal power of the leucocyte of the blood and of the serum of man and many animals is due to the presence of specific granules, especially the eosinophilic and neutrophilic. These observers think that the granular leucocytes when called upon to resist the action of invading bacteria may give up their granules to the surrounding fluids or tissues. They consider that this theory explains how apparently cell-free fluids can destroy bacteria.

LEAD POISONING IN THE POTTERIES.

SEVERAL questions have recently been asked in the House of Commons with regard to the numerous cases of lead poisoning which have occurred in the Potteries. The Home Secretary has spoken in the House of thirty cases in which such poisoning had admittedly occurred; there have been several deaths and several sad cases of blindness. It is also certain that the cases of illness which are admittedly due to plumbism, and officially returned as such, form but a proportion of the real number. This is deplorable, but it is satisfactory to know that the Government have taken steps to provide a remedy. Dr. Whitelegge, Chief Inspector of Factories, is now completing an investigation, undertaken on the spot, with a view to reporting to the Home Secretary upon the efficiency of the present factory rules, and it is probable that his report will lead in the near future to a better state of affairs by showing the present rules to be insufficient to guard the operatives against so subtle a disease as lead poisoning and by showing also that, such as they are, the rules are not observed. The blame for the non-observance of the rules will probably be found to lie pretty equally between employers and employed and any amendments will be made in the interests of both, but beyond the framing of new rules there lie other important questions. These questions we cannot answer, and we believe that at the present moment no one can answer them, but they are no longer in the air only. They have become of practical importance. Is lead poisoning a necessary concomitant of working in the Potteries? If lead must be used, is there no form which is more innocuous than the form of the metal at present employed? Lastly, if foreign competition is so severe on the manufacturers that the employment of lead in any other way than the way in which it is at present employed would exactly make the difference whether their manufactures can be run at a profit or at a loss, what does sound political economy dictate? If the factories are closed the wages of thousands will be cut off; there will be no lead poisoning and no food. If the factories remain open it seems impossible to prevent occasional cases of lead poisoning, though strict rules and strictness in enforcing them should reduce the number of cases to a minimum.

LONDON UNIVERSITY COMMISSION BILL, 1898.

THIS Bill passed the third reading stage in the House of Lords on Friday, March 18th, without comment. A deputation of six delegates from the institutions interested in the formation of the University will wait on both sections of the metropolitan Members at the House of Commons on Monday next to point out to them that this is a London question and of vital importance in the interests of education to everyone living in or near the metropolis. The six delegates will be representative of the Royal College of Surgeons of England, the Royal College of Physicians of London, University College, King's College, the Theological Colleges, and the Medical Schools.

COLONIAL MEDICAL SERVICE ORGANISATION.

THE committee elected at a public meeting, held at the Imperial Institute on March 2nd, 1898, to deal with this question, met for the first time on Monday, March 21st. The committee consists of Sir Joseph Fayrer, Bart. (chairman), Sir Wm. des Voeux, Sir Guyer Hunter, Sir Dyce Duckworth, Surgeon-General Reade, C.B., Mr. Osbert Chadwick, C.M.G., Dr. J. Anderson, C.I.E., Dr. V. Corbould, Dr. R. W. Felkin, Mr. John Furley, Dr. H. P. Hawkins, Dr. A. P. Hillier, Dr. A. Keith, Dr. H. M. Murray, Dr. H. W. McLeod, Mr. T. H. Richards, Dr. W. J. Simpson, Mr. W. G. Spencer, Dr. G. Thin, Mr. J. G. Turner, and Mr. J. Cantlie (honorary secretary). The committee drew up a resolution to be forwarded to the Secretary of State for the colonies to the effect that "it is desirable to organise the Colonial Medical Service on lines parallel to the other public medical services."

FEES AND CERTIFICATES OF DEATH.

A REMARKABLE case has just been tried at the West Ham police-court where a medical practitioner named Blewitt was summoned for refusing to give a death certificate without reasonable cause. The facts of the case were as follows. Mr. Blewitt had attended a woman named Desborough in her confinement and also the baby, who died upon Dec. 2nd, aged two months. When the father called for a certificate Mr. Blewitt is reported to have refused to give one until he had been paid his fee for attending Mrs. Desborough. As the child could not be buried an inquest was held at which Mr. Blewitt attended, receiving his fee of one guinea. In his evidence he said that signing certificates took up a certain amount of time, that that time could only be obtained by special appointment, and that appointment could only be made upon payment of a retaining fee. As he had never been paid for attending Mrs. Desborough he turned the fee for attendance on her into the retaining fee for the death certificate. At the police court he was fined 40*s.* and costs—in all £5 9*s.* 6*d.* Now this shows very well the hardships to which medical men are liable. First of all the delay which occurs in their receiving payment for services rendered; secondly, the responsible duties laid upon them by the State which they have to give without fee or reward. But it also points the moral that illegalities should not be committed because the law is bad. Mr. Blewitt was quite in the wrong in saying that death certificates could only be obtained by appointment, such appointment having to be paid for, and by his action he

necessitated an inquest and put the ratepayers to an unnecessary expense. It savours of a Gilbert comic opera to see a man receiving a fee for giving evidence in an inquiry which has been set on foot owing to his illegal action, but the fact remains that even if he does get, or has got, paid he will still be out of pocket by the amount of £3 16*s.* 6*d.*

A "NOSE COMPETITION" AT MILAN.

THE nose has at all periods of their history possessed a peculiar significance for Italians. As a symbol of intelligence it figures in familiar speech ancient and modern, a "homo nasutissimus" being Seneca's equivalent for a very clever man and "Naso" a name held in honour by the Otacilian, Octavian, Ovidian, and Voconian "gens," while "Nasica" was a cognomen of the Scipios, one of whom, Publius Scipio Nasica, was, as the most virtuous man in the State, chosen to accompany the image of the Mater Idæa to Rome. In the Italy of to-day "aver naso" and "esser di buon naso" (to have nose, to be of good nose), are the first of a series of phrases all turning on that feature in its symbolic sense, and giving rise to proverbs infinite in the variety of their application. The great Napoleon was true to his Italian origin in his preference for a "big nose," and the late Lord Beaconsfield, descended from Venetian Jews, never concealed his scorn for the "flat-nosed Frank." He held, in fact, that to be "simus" was the first step towards being a "simia" or ape—a "retrocession in evolution" admitted by some among the "facts for Darwin." Such a horror have Italians of any lesion costing the face its nose or robbing the latter of its due proportions that rhinoplasty among them has long been one of the "surgical fine arts" and the great Bolognese anatomist Tagliacozzi (1546–99) has for all time given his name to an ingenious method of replacing the feature when lost. Quite in keeping, therefore, with all precedent as well as with the fitness of things it is in Italy that we find the "cult of the nose" as vital as ever, insomuch that within the last seven years she has had two "Concorsi di Nasi" (or nose competitions) in which the owners of the feature received prizes according as they could present it in greatest perfection as regards type, size, beauty, and olfactory power. The former of these "Concorsi" was held in 1891 at Padua on the initiative of the students of that medical school and the citizens were invited "con ischeda segreta," by universal suffrage and secret voting, to name the possessors of "i nasi più sviluppati e rispettabili" (noses the most pronounced and respectable) of the ancient Venetian town. The prizes, consisting of pocket-handkerchiefs and snuff-boxes, were in due course awarded by plurality of votes. At Milan, and quite recently, a much better ordered and more conclusive competition of the same kind has just come off, the whole proceedings being controlled by a committee and the "examinations" conducted in a "Nasoteca" furnished with drawings and water-colours of heads well provided with noses, such as would have gladdened the artistic sense of William Hogarth. The competitors numbered thirty-six but not more than twenty-three appeared before the "examiners." The first prize (gold medal) was won by a Venetian, Fortunato Michielutti by name, a vendor of lucifers, whose nose was found to be of "proporzioni inquietanti, lungo, deciso, ardito, tagliente come una lama di coltello" (formidable proportions, long, well-pronounced, aggressive, trenchant like a knife-blade). The second prize fell to one Antonio Pozzi, possessed of a nose "prepotente, presuntuoso, con nari larghe e cavernose" (domineering, assuming, with nostrils wide and cavernous). The award for this was a medal in enamel; while the third prize (a silver medal of the first order) was adjudged to Carlo Ascani for the refined, symmetrical proportions of his nasal feature. The last two prizes (the fourth and fifth, silver medals of the second and third order respectively) were given for a nose "without pretension, ingenuous, but solid and well planted," and for one "considerable, regular, and worthy of respect." The candidates who were unsuccessful—perhaps "ploughed" would be a more suggestive word—shared the festivities with which the committee concluded its labours; and so the "Concorso di Nasi" became a thing of the past, till the "Buon-temponi" (merry-makers) of a future year or another city think fit to revive the harmless, not inartistic, though dubiously "scientific," competition.

THE NOTIFICATION OF PUERPERAL FEVER.

THE indefiniteness of the term "puerperal fever" is inconvenient, to say the least, especially in regard to the duties of medical men under Section 55 of the Public Health Act. It would be absurd to require the medical practitioners to notify every slight or temporary rise of temperature in a puerperal case under the name of puerperal fever. We have lately written briefly for the guidance of practitioners on this question. The Vestry of St. Matthew, Bethnal-green, has had its attention drawn to this subject by its Sanitary Committee in the following terms, which correspond very much with the views we have expressed:—

"The committee find that considerable uncertainty exists as to what diseases should be reported to the medical officer of health under Section 55 of the Public Health (London) Act as 'the fever known as puerperal'; they have also ascertained that owing to its indefinite meaning the term 'puerperal fever' has been expunged from the Official Nomenclature of Diseases and therefore recommend that The London County Council be requested to take the necessary steps under Section 56 (6) of the Public Health (London) Act to add to Section 55 (8) of the same Act the names of the diseases included under the heading of 'puerperal fever' by the Registrar-General—viz.: 'Both peritonitis and metritis, when occurring in connexion with parturition, as well as puerperal pyæmia, puerperal septicæmia and puerperal sapræmia.'"

It would be interesting to know how vestries contrive to inform themselves of puerperal fever cases in the practice of midwives, who are not included in Notification Acts.

MR. GLADSTONE'S ILLNESS.

WE regret to learn that Mr. Gladstone's case has entered on a new phase which has made surgical advice necessary. This can scarcely be interpreted in any other way than that there is a serious cause for the symptoms from which he has suffered during the past nine months. At his great age the gravity of any surgical ailment is apparent and the exhaustion consequent on prolonged and severe neuralgia is in itself an unfavourable feature. Mr. Gladstone's vitality, however, is wonderful, and his general health remains good.

THE IRISH WORKHOUSE NURSING ASSOCIATION.

THE annual general meeting of the Irish Workhouse Nursing Association, lately held at the Mansion House, Dublin, was one of unusual interest. Sir George Duffey paid a very proper tribute to the active part which the medical profession has taken in bringing about various reforms in workhouses in all parts of Great Britain, from the time when THE LANCET appointed a Special Commission in 1865 to investigate the state of Irish infirmaries and workhouses down to the present time. Mr. D'Estree Parker, in seconding the motion, referred to the high mortality amongst children in Irish workhouses. Sir John Arnott, when he was Mayor of Cork, had visited the workhouse of

that city and found the children in a shocking state of illness, delicacy, and ill-treatment. As a result of that an inquiry was held by the Irish Poor-law Commissioners and it was distinctly proved that as many as 50 per cent. of the children admitted to the Cork workhouse since 1859 had died before they reached the age of fifteen years. After the attention of Parliament had been called to it an Act was passed enabling the children to be boarded out. The concluding resolution was one urging on the Executive Committee of the association the need for systematic effort to improve the condition of children under Poor-law authorities, and to go on with the beneficent work which they have begun towards the abolition of pauper nursing which led to bribery and all kinds of abuses. The association referred to undoubtedly merits the congratulations that were accorded to it. There seems every probability that the introduction of the clauses relating to the improvement of nursing in workhouses in Ireland into the new Bill was largely at the initiation of a deputation of the association which waited on Mr. Gerald Balfour only a few weeks ago, shortly before the Local Government (Ireland) Bill was laid before Parliament.

DOGS AND THE PUBLIC SAFETY.

ANY law which tends to protect the public from the likelihood of being bitten by stray and possibly rabid dogs should find general favour and the Dogs Regulation Bill, as the Government have named their measure framed for this purpose, is an improvement on such fragmentary and spasmodic Acts and Orders as have preceded it. Put briefly it enables county councils to make regulations facilitating the identification of dogs and their owners and assists the police and the public in getting rid of ownerless and destructive animals, while it leaves to the Board of Agriculture the powers which it had already under the Diseases of Animals Act, 1894. These include the prescribing and regulating of dog-muzzling and also the prescribing and regulating of the seizure, detention, and disposal of stray dogs, so that the Board presumably will not only be the sole muzzling authority but will be able to step in and deal with stray dogs in any place where the local authorities have not taken steps to diminish their numbers. The Board will, we imagine, have the power to order universal muzzling; at any rate it will act with more authority and scientific knowledge than is usually at the disposal of local authorities and, if necessary, upon a larger scale. There are, of course, many matters of detail in the Bill that will be criticised and more carefully defined when the Bill reaches the committee stage, as, for instance, the branding to be allowed for purposes of identification, and inserted presumably for the benefit of hounds, while the arbitrary powers given to the police to diagnose and destroy suspected cases found upon the highway will probably be curtailed; but apart from minor alterations the Bill is more likely to find public favour and be enforced by the police than the muzzling orders that have preceded it. The practical question of enforcement remains the chief difficulty.

WELSH WATER FOR BIRMINGHAM.

THE evening discourse at the Royal Institution on March 18th was delivered by Mr. James Mansergh, vice-president of the Institute of Civil Engineers, who took for his subject the bringing of water to Birmingham from the Welsh mountains. The lecture was for the most part occupied with engineering details relative to the construction of reservoirs, dams, and the great aqueduct about seventy-four miles in length which conveys the water to a reservoir in the immediate neighbourhood of Birmingham. The aqueduct has an average fall of sixteen inches per mile and is for the greater part of its length constructed of brickwork and concrete, iron pipes being used in the places where the water is conveyed under pressure. The discourse was profusely illustrated with lantern views thrown on the screen and models of various engineering works together with a relief plan of the collecting area stood on the platform. This area is in the districts known as Elan and Claerwen in Radnorshire; it extends to about 45,000 acres of hill or moorland which would probably not support more than one sheep per acre and is very sparsely inhabited indeed, so that there is practically no risk of local pollution. One of the reservoirs will include the site of Cwm Elan House, where Shelley formerly resided, and the surface of the water will be at a higher level than the tops of the trees surrounding the house. For the accommodation of the men engaged on the very extensive works which are in progress in Radnorshire a village has been built capable of housing 1100 or 1200 persons, all the hygienic and sanitary arrangements being of the most approved modern type. Schools have been provided for the children, recreation halls and baths have been erected, and there are two hospitals, one in the village for the ordinary patients and accidents and the other on a hillside at some distance for infectious cases. To diminish the chance of infectious diseases, such as small-pox, finding an entry into the village casual labourers on first presenting themselves are subjected to a partial quarantine: they are employed in the kind of work for which they are engaged, but are not admitted to the village till they have lived for about a fortnight at a "doss-house" specially provided for them.

THE PHARMACY ACTS AMENDMENT BILL.

IN THE LANCET of March 12th we discussed briefly the principal clauses in the Pharmacy Acts Amendment Bill, which has just passed a second reading. It is easy to understand why this measure is regarded with approval throughout the ranks of the Pharmaceutical Society and by pharmacists generally. It brings with it the promise of a great increase in the membership of the society and at the same time it aims at preserving a good average of qualification. The Act of 1868, which fixes the legal status of chemists and druggists, makes provision practically for two classes of persons—(1) chemists in business before the date of the Act who are *ipso facto* entitled to be registered; and (2) all others, who must pass a qualifying examination. It follows that at no very distant date all registered chemists will have become qualified by examination, while any who are not thus recommended must at least possess the guarantees that go with long experience. Two tests of competence, a "minor" and a "major" examination, have been instituted by the Pharmaceutical Society which is the examining body. At the present time a candidate in order to attain to membership must have passed the major examination. The minor test, however, is fully sufficient to ensure a competent knowledge of the principles and practice of pharmacy. Under the circumstances, therefore, there seems to be every reason why this examination also should carry with it the privileges of membership. To secure this desirable end is in effect the most important purpose of the new Bill. It is only right that further opportunity for discussion and amendment should be afforded in the committee stage, but these are hardly likely to alter materially its essential features. The Pharmaceutical Society, which cannot at present be considered as being in any true sense representative of its own offspring and much less so of the general body of chemists and druggists, would certainly gain in cohesion and corporate influence by the passing of the new Bill. It has already done so much towards providing a body of thoroughly educated druggists that we cannot but regard its proposed

voluntary reconstruction as a reform of good omen for the practice of pharmacy.

THE HEALTH OF LORD SALISBURY.

WE are glad to be able to state that Lord Salisbury has been making very satisfactory progress and it is hoped that he will be able to start for Beaulieu to-day (Saturday).

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

THE St. Patrick's festival dinner of this Association was held at the Café Monico on March 17th, the President, Dr. Mapother, being in the chair. There was a large assembly of members of the Association and guests and a most enjoyable evening was spent. The Association is noted for its hospitality and the number of guests exceeded any previously recorded. One feature of these dinners is the presence of ladies, and although we did not see any representatives of those who hold medical degrees still the fair sex was worthily represented in other respects. Amongst the guests were Lord Charles Beresford, Archdeacon Sinclair, the Ven. Archdeacon Jones, the Vice-Chancellor of Cambridge, the President of the British Gynæcological Society, Inspector-General Lloyd, Inspector-General Whitty, Inspector-General Davis, Professor Ramsay, F.R.S., Dr. Anderson, C.B., Sir Joseph Fayrer, Bart., K.C.S.I., Sir Trevor Lawrence, Lord Oxmantown, the Hon. Charles Russell, the Baron de Bush, Dr. John Anderson, C.I.E., Mr. Reginald Harrison, Dr. Radcliffe Crocker, Mr. Butcher, Q.C., M.P., and there were many others. After the toast of "The Queen and the Royal Family," Professor Alexander Macalister proposed "Our Guests," to which toast Admiral Lord Charles Beresford, M.P., and Sir Joseph Fayrer replied. "The Association," proposed by Dr. A. Hill (Vice-Chancellor of Cambridge University), was responded to by the President. Sir W. Mac Cormac, Bart., President of the Royal College of Surgeons of England, proposed "The Universities" and Professor Ramsay, F.R.S., and the Ven. W. M. Sinclair replied. The hon. secretary, Mr. Freyer, proposed the toast of "The Ladies" and Mr. Butcher, Q.C., M.P., responded on their behalf. Songs by Mr. Frankin Clive and Mr. Douglas Powell contributed to the enjoyment of the evening.

THE ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.

IT has long been known that the accommodation at the Royal Westminster Ophthalmic Hospital, King William-street, Strand, is insufficient for the increasing number of patients. The beneficent record of the institution extends back more than eighty years—in fact, to 1816—when it was founded by the eminent surgeon, Mr. G. J. Guthrie, F.R.S., whose perception of the need for such an institution has been justified by the course of events. The existing building dates from 1831 and the committee, feeling that larger premises would enable the work of the hospital to be carried on under more favourable circumstances than at present, have accordingly opened a building fund, a step the reasonableness of which, and in fact the necessity of which, is acknowledged by all who are acquainted with the manifold calls made on the resources of the charity. Loss of sight, whether complete or partial, is one of the greatest deprivations imaginable, especially when the sufferers happen to be persons who have to support themselves and their families by their daily employment, and the work of an ophthalmic hospital seems to have an especial claim on the sympathy and favourable consideration of the wealthy and the charitable for the reasons that, on the one hand, the prospects of the patients, if unrelieved, are too often deplorable, while, on the other hand, the timely intervention of skilled aid is frequently successful in doing much to remedy the effects of injury or disease. Great advances have been made in our knowledge of the structure, functions, and pathology of the eye since the present hospital has been in existence, and the natural effect of this advance in knowledge has been to make operations on the eye more numerous and more successful, to increase the instrumental and therapeutic requirements of ophthalmic surgeons, to add new departments to ophthalmic hospitals, and in almost every way to render larger premises and a larger outlay unavoidable. The long and honourable story of the Royal Westminster Ophthalmic Hospital entitles it to sympathy and support, and for its opportunities to be hampered by lack of means would be grievous in the extreme. The amount sought to be raised in connexion with the building fund is £50,000, which will provide for site, building, and endowment. Of this sum only about £3800 has up to the present been received, and it is essential that £6000 should be obtained during the current year for the purpose of securing a site. In order to bring the needs of the hospital more prominently before the benevolent it has been determined to hold a dinner in aid of the building fund on April 30th at the Hôtel Métropole, at which the Speaker of the House of Commons has consented to preside, and it is earnestly hoped that the result of the committee's appeal may be a substantial addition to the finances of the institution. The annual report for 1897 shows that 644 in-patients were treated during that year, as against 558 in 1896. There were also 10,558 individual new out-patients, who made 26,404 total attendances.

THE SANITARY INSTITUTE.

THE annual dinner of the Sanitary Institute took place on Wednesday evening last at the Holborn Restaurant. In the unavoidable absence of the President, H.R.H. the Duke of Cambridge, the chair was taken by Sir Douglas Galton, K.C.B., President of the Council. There was a large gathering of members and friends of the Institute, the company included Earl Fortescue, Earl Egerton of Tatton, Sir E. Galsworthy, Sir Joseph Fayrer, Bart, Sir A. Blomfield, Dr. R. Farquharson, M.P., Mr. G. J. Symons, F.R.S., Professor Corfield, Dr. Vivian Poore, Dr. Sims Woodhead, Dr. Coupland, and Dr. Whitelegge. After the usual loyal toasts had been duly honoured, Sir Joseph Fayrer proposed the toast of "The Navy, the Army, and Auxiliary Forces," which was responded to by Major-General Carey. Sir A. Blomfield gave "The Houses of Parliament," to which Lord Egerton of Tatton and Dr. Farquharson replied. The toast of "The Sanitary Institute" was proposed by Sir E. Galsworthy, who reviewed the work done by the Institute since its foundation in 1872, and was responded to by Sir Douglas Galton, who dealt with the various departments of its labours and gave many interesting particulars of the manner in which it was furthering the cause of sanitation.

A MEETING of the board of management and medical staff of the West London Hospital and of medical practitioners resident in the western districts of London will be held at the hospital, Hammersmith-road, W., on Wednesday next, March 30th, at 4 P.M., to discuss the subject of hospital reform. All interested in the various questions involved are, we understand, invited to be present.

DR. W. S. CHURCH and Sir Dyce Duckworth have been appointed consulting physicians, and Sir Thomas Smith, Bart., has been appointed consulting surgeon, to the Royal General Dispensary, Bartholomew-close.

THE sixteenth Congress of German Internal Medicine will meet in Wiesbaden from April 13th to the 16th under the presidency of Professor Moritz Schmidt. The programme announces that the following important subjects have been selected for discussion and will be introduced by authorities of the first rank: Instruction in Clinical Medicine, introduced by Professor Ziemssen (Munich) and Professor von Jaksch (Prague); the Present Treatment of Diabetes Mellitus, an address by Professor Leo (Bonn); Intestinal Auto-intoxication and Antisepsis of the Bowel, introduced by Professor Müller (Marburg) and Professor Brieger (Berlin). Any medical practitioner may attend the Congress as an Associate (Theilnehmer) by taking a ticket which costs fifteen marks (15s.). Associates will be admitted to the addresses, demonstrations, and discussions and will receive copies of the Transactions, for which booksellers will charge about eleven marks.

THE interesting case of Harrop *v.* the Corporation of Osset, in which the plaintiffs sought to restrain the defendant corporation from using a certain building adjacent to their property as a small-pox hospital, came to a conclusion on Tuesday last, the verdict being for the corporation. We shall make full reference to the case next week.

WE regret to announce the death of Dr. Charles West the founder of the Children's Hospital, Great Ormond-street, which occurred on Saturday last. We hope to publish an extended obituary notice in an early issue.

LORD ROTHSCHILD, the President of the Royal Hospital for Diseases of the Chest, City-road, has given 200 guineas to the Festival Dinner Fund and Messrs. N. M. de Rothschild have also contributed 100 guineas.

H.R.H. THE DUKE OF CAMBRIDGE has consented to preside at the festival dinner to be held in aid of the funds of the Royal Ophthalmic Hospital at the Grand Hotel, Charing-cross, on Friday, May 6th.

THE Duke of Fife, President of the Hospital for Sick Children, Great Ormond-street, has given £100 as a donation to start the fund for the purchase of the adjoining Hospital of St. John and St. Elizabeth.

LORD IDDESLEIGH has accepted the Chairmanship of the Royal Commission which, as we have already announced, is about to be appointed to inquire into the various phases of the sewage question.

DR. THOMAS OLIVER of Newcastle-upon-Tyne has been appointed to represent the Home Office at the International Congress of Hygiene and Demography to be held in Madrid in April next.

LORD LISTER will preside at the annual festival dinner of King's College Hospital, which will be held at the Whitehall Rooms of the Hôtel Métropole on Tuesday, May 3rd.

A MEETING of the Royal Commission on Tuberculosis was held on March 23rd, under the chairmanship of Sir Herbert Maxwell, when the consideration of the report was concluded.

THE Worshipful Company of Skinners have granted a sum of £1000 towards the opening of the closed wards of the City Orthopædic Hospital.

H.R.H. THE DUKE OF YORK has become a Vice-President of the Royal National Hospital for Consumption, Ventnor.

THE ROYAL COMMISSION ON THE METROPOLITAN WATER-SUPPLY.

THE earlier proceedings of the fifteenth meeting of this Commission, which took place on Monday, March 14th, have already been published in THE LANCET of March 19th. Our report broke off at the point where Sir John Lubbock, M.P., presented himself to give evidence.

Sir JOHN LUBBOCK, in answer to the CHAIRMAN, said that in his opinion the purchase of the undertakings of the metropolitan water companies by the London County Council would not be to the interests of the people of London. He did not think that rivers were proper sources for the supply of water for London. To manage the water-supply of London would be a very onerous undertaking and would require a staff of engineers. As things were at present the water-supply was under the control of the London County Council and of the water examiner to the Local Government Board. If the undertakings were in the hands of the London County Council there would be no body to take action so effectively in matters concerning the control of the supply as there was under existing circumstances. From a financial point of view there would be great losses entailed by the purchase of the water companies' businesses by the London County Council. The comptroller to the Council had estimated the present market value of the stock of the London water companies at £39,600,000, and he had contended in the course of his examination that economies would be carried out by the London County Council with regard to administration. In Sir John Lubbock's opinion, however, it would be likely that the salaries of those employed in carrying out the work would be increased rather than diminished. Economy was not a leading characteristic of the London County Council. He could not see any reason for supposing that the collection of the water-rents would be cheaper, and with regard to the matter of stationery in which it was supposed that an economy would take place he thought the idea was a mistaken one. He did not agree with the estimate made by the comptroller with regard to the price at which money could be raised by the Council. He thought that if a large amount were to be raised by that body the price at which the loan was issued would be less favourable than the comptroller wished them to believe. Another objection to the scheme propounded by the Council was the difficulties which would arise with regard to the outside areas and in making arrangements for the water which was to be given to them.

Major-General SCOTT suggested that there would be engineering difficulties with regard to the distribution of water to the outlying districts.

Sir JOHN LUBBOCK, in reply, said that apart from engineering questions, on which he could offer no opinion, there must be considerable expense attending the redistribution of the water-supply. The expense of bringing up water from Wales would also be considerable. If they were foolish enough to buy the present undertakings the amount paid for water in London must be considerably increased. Sir Alexander Binnie had suggested that the water supply from rivers might be replaced by a pure supply from Wales and he agreed that that would be the right course.

Mr. DE BOCK PORTER said that he had understood that Sir Alexander Binnie had said that the supply from Wales would be used only to supplement that already in use, and the CHAIRMAN remarked that the statements of Sir Alexander Binnie on this point were somewhat ambiguous.

Sir JOHN LUBBOCK said that, taking into account the price which would have to be given in the case of purchase of the London water companies' undertakings and adding to this the cost of bringing a new supply from Wales, it was surprising to him that Sir Alexander Binnie should have given an opinion that the London County Council would be able to supply water at a price less than that which is charged at present. Comparing the prices charged in London with those in provincial cities it was evident that water consumers in London had in many cases to pay less than the amount charged in other places in which the water was supplied by the local authorities. At the present time with regard to the capital invested in London water companies a large amount of it already received full dividend. In

the case of the West Middlesex company the full statutory charges were not made because the maximum permissible dividend could be paid without doing so. What possible benefit, therefore, could it be for the ratepayers to buy such an undertaking? If it did well then the profit would go to the water consumers; if, on the other hand, it did badly, the loss would rest with the company. As things were at present in the case of the district supplied by the West Middlesex Company the consumers were in a state of "Heads I win, tails you lose." Nothing was to be gained by purchase and there was a chance of making a loss. On other accounts it was not desirable that the London County Council should be a great employer of labour. It would be a question whether the staff would rule the Council or the Council the staff. The Commissioners were not to suppose that the London County Council were by any means unanimously in favour of the purchase of the London water companies' undertakings. Many of the metropolitan Members of Parliament were opposed to it. So also were the members for the home counties. Sir John Lubbock recommended a policy of control and with regard to this he advocated a system analogous to that which obtains in India in the case of some of the railway companies. He pointed out that at the present time the water consumers had really an interest in all the undertakings with the exception of the New River Company. The maximum dividend which could be paid to the shareholders of the other companies was 10 per cent. Some of the companies already paid this and in some cases they were paying "back dividends" in addition. When all arrears of back dividends were paid no further dividend than 10 per cent. could be paid. The water consumers, therefore, at the present time had a direct pecuniary interest in the management of the companies' undertakings, for as the profits increased the companies must necessarily reduce the price charged for water. The case as it now stands amounted, therefore, to this, that the present shareholders of the companies held the position of preference shareholders. He suggested that it would be a good thing to place on the board of each company representatives of the ratepayers and that these representatives should see that their interests were properly looked after. In addition to this method of control he advocated that the back dividends should in some cases be reduced and that the companies themselves should be left with their present responsibilities. In this way conflict with outside authorities would be avoided. The interests of the water companies and of the public would also become identical, and therefore any consideration with regard to a new supply would be made much easier. The arrangement he proposed would be fair both to those who had shares in the water companies and to the public. The water companies would escape legal expenses and their position would be secure; the public would avoid undertaking an immense responsibility, would gain all the advantages of purchase and would avoid all its dangers.

In answer to Sir JOHN DORRINGTON the witness said that if the present companies were left to carry on the supply of water he would suggest that the extra supply which would ultimately be necessary should be so arranged that towns lying in the course of its passage from the source of supply to London should be supplied, and if the water companies were not prepared to undertake the Welsh scheme the London County Council might be empowered to undertake it.

Sir JOHN DORRINGTON suggested that this bore a "dangerous resemblance" to a competitive scheme.

Sir JOHN LUBBOCK pointed out that it would be possible to make a binding agreement before the work was undertaken.

The meeting of the Commissioners was adjourned to Monday, March 21st.

The sixteenth meeting of the Royal Commissioners was held in the Westminster town-hall on Monday, March 21st. With the exception of the Right Hon. William Mellor, Q.C., all the commissioners were present. The first part of the sitting was occupied in taking the remaining evidence of Sir John Lubbock.

Mr. H. W. CRIPPS, Q.C., referred to Sir John Lubbock's proposal that directors should be appointed to the water companies to watch the interests of the ratepayers and asked whether the same principle could be applied to railway companies whose dividends were limited by Act of Parliament.

Sir JOHN LUBBOCK said that the suggestion had originated with himself, but there were others who agreed with him that it would be useful and practicable. The dividends of English railways were not limited although the rates which the companies were allowed to charge were under control.

Sir GEORGE BRUCE said that he had never heard of any such limitation, and the CHAIRMAN remarked that he did not think that anyone else ever had.

Major-General SCOTT asked Sir John Lubbock whether he thought that it would be a good thing for some control to be exercised over the companies with regard to the contingencies of future supply.

Sir JOHN LUBBOCK said that the East London Water Company had appealed to Parliament for powers to increase their storage capacity by making new reservoirs, and that at the instance of Mr. Stuart, M.P., the Bill promoted by the Company was defeated. In this case the East London Water Company's directors had foreseen the wants of the future and the proposed work had been opposed by the London County Council.

Major-General SCOTT asked whether it would not be possible to provide against laxity on the part of any company in making provisions for the future and whether it would be possible to have an administrative control which would detect deficiencies and cause the companies to make provisions for ensuring that they should be remedied.

Sir JOHN LUBBOCK thought that if the London County Council obtained possession of the undertakings it would be extremely difficult to exercise any control over them.

Major-General SCOTT referred to the supervision exercised by the Board of Trade with regard to railway works; this supervision was exercised to ensure efficiency. If the water companies neglected to provide for their future wants they could not suddenly make the necessary arrangements for the supply of water, for the work necessary for the construction might take four or five years. Should a breakdown of the supply occur through insufficiency of storage capacity, complaint was useless because the improvements which were necessary to prevent such a contingency could not be carried out in time to be of service, therefore for a time such a catastrophe was irremediable.

Sir JOHN LUBBOCK thought that the directors of the present water companies would be more likely than local authorities to look forward to such a contingency, because it was possible that the companies would suffer in their dividends.

Major-General SCOTT said he was not aware that the companies would suffer in their dividends in such a case as the one he had suggested. Ratepayers had to pay for their water whether they obtained it or not. He asked the witness whether it would not be possible to have in the case of the water-supply an expert authority to examine into the efficiency of the undertakings. In the case of railways, to which he had previously alluded, the Board of Trade provided that the works should be of sufficient strength, but with regard to the water companies future necessities might be foreseen and provided for so that any breakdown in the water-supply would not occur.

Mr. FREEMAN, Q.C., examined Sir John Lubbock on behalf of the London County Council.

The witness said that a large majority of the members of the Water Committee of the late Council were in favour of purchase. With regard to the management of the water-supplies of Liverpool, Birmingham, and Manchester, Sir John Lubbock was not prepared to admit that the undertakings as carried out by the corporations had been financially successful. It was, however, not on financial grounds alone that he objected to the purchase of the undertakings by the London County Council. It was important with a view to securing the purity of water that should the Council acquire the undertakings a central authority should exercise over them some powers of control. In the case of some of the provincial water-supplies which had been mentioned the water was derived from pure sources, whereas with regard to London this was not the case, and it was necessary that the water should be filtered before it was fit for distribution. Filtration required supervision and control.

Mr. FREEMAN suggested that it had been the tendency of Parliament to "insist upon" the transfer of water undertakings to the municipalities which were willing to take them.

Sir JOHN LUBBOCK pointed out that Parliament had never taken the initiative in the matter. In cases in which the municipalities were willing to undertake the water-supply powers had been usually given to them to do so. He did

not know of any case in which the water-supply had been transferred to a municipality and had been afterwards given up, and he thought that it would be practically impossible for a municipality which had taken over the supply to go back to the old system.

Mr. FREEMAN suggested that should the undertakings of the water companies be acquired by the London County Council supreme authority would still be vested in the Local Government Board.

Major-General SCOTT pointed out that Mr. Dickinson had suggested that there should be no control over the London County Council with regard to the water-supply, and the CHAIRMAN reminded Mr. Freeman that Mr. Dickinson had stated it as his opinion that the "Representatives of the People" ought not to be controlled by any outside authority.

Sir JOHN LUBBOCK said he agreed with the suggestion of the London County Council that it would be well for London to have a pure water-supply from a distance, but the matter involved very difficult questions. He did not think it would be impossible for the existing companies to obtain water from Wales, and should they undertake this work it might be an advantage for some of the companies to amalgamate, but he did not think any good would come from the amalgamation of the companies on the north with those on the south of the Thames, and with regard to the Kent Company they had at present an ample supply for all their wants. The fact that three of the companies had undertaken jointly to carry out the Staines reservoir scheme pointed to the fact that it was possible that the companies might come to some mutual arrangement by which water could be brought up from Wales for their common benefit. Such a thing was at least possible, but as far as he knew it had not at present been suggested by the companies themselves. In his opinion the London County Council had already such an enormous amount of work on their hands that it would be unwise to give them any more. As an example of the work which the Council had already to do he had brought an agenda paper of the work for one day. The paper contained forty-nine pages and there were on it 150 resolutions. The matters considered dealt amongst other things with a loan of over £200,000, with questions relating to the opposition to be offered by the Council to certain bills now before Parliament, with electric lighting, with tramways, with the fire brigade, with the question of the housing of the working classes, with technical education, with workmen's trains, and with a variety of other matters. The witness thought, to use Lord Rosebery's expression, that it would not be wise to "break the back" of the Council. The Council did their work zealously and displayed capacity and devotion to duty. Every member of the Council had to serve on two or three committees. He thought that it would not be well for the Council to employ more labour because there was also a danger in the case of a body like the London County Council which was directly elected that the interests of the ratepayers would not be considered with regard to economical management with respect to the question of wages. The expenses of administration would also be increased because persons elected to the London County Council had no expert knowledge with regard to matters connected with the water-supply, whereas in the event of the election of a new director to a water company a man who had some knowledge of the matter was usually selected

Sir JOHN LEESE, Q.C., on behalf of the Kent County Council, asked Sir John Lubbock some questions with regard to the opinion of the people in Kent on purchase by the London County Council.

Sir JOHN LUBBOCK said he understood that they were opposed to purchase and that should the undertakings be purchased the people of Kent wished to have control of the water in the part of the county beyond the area of London which was supplied by the Kent Waterworks Company.

Mr. RICHARDS, on behalf of the water companies, asked some questions with regard to the raising of money by the London County Council, and Sir JOHN LUBBOCK again gave his reasons for believing that in the event of purchase of the water companies' undertakings by the Council the London water consumers would have to pay more than they do at the present time, and he pointed out, with regard to the collection of the water rents, which it was supposed that the London County Council would be able to obtain at less expense than the water companies, that the matter would be attended with greater difficulty than some of the witnesses would have them believe. The collection would be by no means simple, because of the number of the London vestries and of the outside authorities. A further difficulty would arise in the case of those customers who were supplied by meter.

The latter part of the sitting was occupied by a speech by Mr. WHITMORE, who described himself as a "practical Parliamentarian," and explained the method by which the different parties in the London County Council were managed.

The next meeting of the Commissioners will be held on Monday, March 28th.

GLOUCESTER AND SMALL-POX.

(*Continued from page 809.*)

IT is only quite lately that opponents of vaccination have ventured to advance a theory of their own as to why the small-pox epidemic terminated so suddenly. Taking the population of the town at 40,000, there were, roughly, 2000 cases of the disease during the epidemic, and if we assume that 2000 or 3000 inhabitants had at some previous time in their lives suffered from small-pox we still have 35,000 persons to account for. Let it be remembered that at this time there was no hospital isolation to furnish an explanation of the small-pox decline. From March to July inclusive over 1200 cases were treated in their own homes, mostly in those alleged "jerry-built" houses of which Dr. Hadwen complains. There were a thousand or more foci of the disease in the town and there were, say, 35,000 people who had never had small-pox and were in this respect open to the existing infection. Nor had the drains been relaid. It is alleged by Dr. Hadwen that a number of manholes were plugged up. But if the houses were "jerry-built" would not the stopping of the street manholes simply drive the sewer gases into the houses themselves, and if, as he holds, small-pox is a "sewer malaria" would not the gases in bedrooms and living rooms do far more harm than in the open air? The density of population was as before, no new hospital was provided outside the town, and there were centres of infection all over the southern part of it and a good many also in the north. Indeed, a glance at Dr. Coupland's spot maps of fortnightly incidence shows that both north and south there were abundant foci for the spread of the disease and yet 35,000 people were not attacked. What was, what could be, the explanation? What have the anti-vaccinationists to say about it?

Their theory is a very curious one and its evolution is not its least interesting feature. Like the broth which Macbeth's witches brewed, there were three at the making of it. The first was Dr. Hadwen, who gave at a meeting in Gloucester the following explanation of the stoppage, not of the Gloucester epidemic, but of the epidemic at Sheffield in 1887: "There were no less than 7000 cases of small-pox and, alas! 600 deaths, and still the small-pox went on, until at last God in His mercy opened the floodgates of heaven and down came the rain, which washed the sewers and the drains, cleared away the filth from the gutters, washed the dirt from the streets and the filth from the dens and away went the small-pox. Pure water accomplished for Sheffield what 56,000 vaccinations had been unable to effect." This was in January, 1896, and was in one respect really a master stroke. Gloucester had at that very time new waterworks in course of construction and quite possibly the new supply might be introduced before the end of the epidemic. Then, though water has never been known to convey small-pox, it would be easy enough for an anti-vaccinationist to attribute the decline of the disease to the new supply. Unfortunately for any such prospect the water came after the epidemic had practically died out. Lieutenant-General Phelps, however, was loath to let the suggestion drop altogether and in his capacity of second witch he in due time and with appropriate incantations threw in a little contribution of his own. At the end of July he wrote to the *Birmingham Daily Post* regarding Gloucester that "the disease clung to the town till a new and much needed water-supply was brought in from Newent on July 1st." Dr. Hadwen had argued that no cause which had not begun to operate long before this time could be accepted. The cases had diminished

from 733 in April to 283 in May and to 122 in June, and, allowing the usual incubation period, the infection had almost ceased to spread by the beginning of July, but the Lieutenant-General, saying nothing in his letter about when the diminution began, declares that the disease "clung to the town" till the new water came in. Finally, Mr. Bayley, M.P., the Parliamentary leader of the Anti-Vaccination League, is responsible for the third stage of the theory. His contribution takes the form of a complaint regarding Dr. Coupland's report, coupled with a demand for explanation. He says: "Practically from the commencement of the outbreak to the time of its cessation there was a period of almost uninterrupted dry weather, but about the middle of July the dry weather broke up and we had a very wet and rainy August. As to whether that had anything to do with the question or not we are left absolutely in the dark by the report; and the story of the outbreak is stopped at its most interesting point, whereas by further investigation into its sudden termination we might be led into a truer and more scientific manner of dealing with this dreadful disease than we have at the present time. We naturally want to know what effect the sudden break up of the long dry season in July and the heavy rains in August had upon the pure water-supply of the city." In addition Mr. Bayley has queries about the clearing away of filth, the removal of cesspools, the flushing of drains, &c. It is not easy to do justice to the conception that the rains of August may have had to do with the diminution or almost cessation of small-pox in the previous three months. That laureate of nonsense, the author of "Alice in Wonderland," might have made something of the suggestion, but he is unfortunately dead. The most whimsical fact of all is Mr. Bayley's solemn demand that the Government should appoint a new Commission to investigate the matter. Outside of Gilbertian opera nothing has been propounded for many a long day equal to this notion of a Royal Commission seriously considering whether the autumn rains had been the cause of small-pox decline in the preceding summer. Some of the other queries propounded for the consideration of this proposed new Commission are equally indicative of Mr. Bayley's ignorance of the whole facts of the case. He says: "One of the questions on which Dr. Coupland might have given us fuller information was the excessive number of children under ten years of age who were attacked and died. As these would divide the greater part of their time between the elementary schools and their homes in the crowded quarters of the city may it not have been that they did not get enough fresh air?"—and so forth. But the simple fact is that the most crowded quarter of the city, the St. John Baptist district, was very little affected by the disease, and that it prevailed in a newer and much less crowded part. And as for the children under ten years of age, it was during the previous ten years that vaccination had been practically abolished in Gloucester, so there need be little doubt as to why they were specially affected. Another thing that puzzles Mr. Bayley is "why certain open areas in the city should be absolutely free from small-pox or very nearly so."

It is to be understood, however, that the public inquiry which Mr. Bayley demands is not desired by him for his own benefit but only for the guidance of other people, for notwithstanding all these queries it turns out that he has no doubt whatever as to the cause of the outbreak of small-pox. The conclusion to which he arrives is so striking, and the reasoning by which he arrives at it is so cogent, that we cannot forbear making another quotation. Referring to the reports of the medical officer of health he says: "In the 1893 report we read: 'I regret to have to announce that since the Severn water has had to be used a large increase has taken place in the number of typhoid fever cases notified in the city. I do not pretend to say positively that the Severn water is the cause, but I can find no other explanation for it.' ..... Again, in the following year, 1894: 'At the beginning of the year a rather large number of cases of enteric fever or typhoid fever occurred, but I have no doubt at all that this arose from the use of Severn water .....' In face of Dr. Campbell's statement in 1891 that the continuance of the existing state of things might lead to the most serious consequences, and in face of his reports in 1893–94, showing that the same state of things did continue, the gross neglect of his warnings was as plainly the cause of the outbreak of small-pox as the starting of two express trains on the same line at full speed in opposite directions would be the cause of the subsequent collision between them." Assuming for the moment that Mr. Bayley knows the facts, then his reasoning is that because a lengthened use of the Severn water in 1893–94 caused in these years the outbreak of a disease, enteric fever, which is well known to be the disease specially conveyable by drinking water, therefore the use of Severn water for four nights in the month of June, 1896, caused an epidemic of another disease, small-pox, which began in June, 1895, and ended in July, 1896, which disease is not known ever to have been conveyed by drinking-water. Holding the opinions above quoted Mr. Bayley warns his readers "that the very natural danger that we may all be in at the present time is rather to take sides on the question of vaccination and non-vaccination"; but as to himself he declares that though his own children have been vaccinated he is "in the position of having an open mind." From the *Vaccination Inquirer*, however, we learn that Mr. Bayley is not merely a member of the National Anti-Vaccination League but a committee-man, and not merely a committee-man, but appointed and recognised as the Parliamentary leader of this League, whose principal objects are "the entire repeal of the Vaccination Acts" and "the Disestablishment and Disendowment of the practice of vaccination." We learn this from the organ of the League, but we do not learn it from Mr. Bayley's pamphlet. He gives no hint there of his connexion with the League, but presents himself as a man with an open mind and therefore in a position to warn other members of Parliament and all who may read his tract against taking sides on the question of vaccination.

Once more, then, what was the cause of the very rapid cessation of the small-pox epidemic? It cannot be attributed to new drainage of the town, for, in the first place, small-pox has not been known to be conveyed by drainage and in the second place the town did not get new drainage. It cannot be attributed to the flushing of the drains by the August rains (even if drain-flushing ever did cause a small-pox epidemic to terminate), for the outbreak had then already come to an end. It cannot be attributed to the new water, for the new water was introduced when the epidemic had already practically ceased to spread. It cannot be attributed to the clearing away of the alleged jerry-built houses, for, so far as they exist at all, they are there to this day. It cannot be attributed to the alleged defects of the hospital, for, in the words of Mr. Arthur Trobridge, anti-vaccinationist and F.S.S., "the early breakdown in the arrangements for isolation left the population without any barrier to check the spread of the disease when once it was set going." But some barrier was set up, for 35,000 persons who had never had small-pox and who were surrounded by sources of infection did not take the disease. What was the barrier?

In the last century, when small-pox was very prevalent and much dreaded, it was found in many dairy counties in England, in the south of Ireland, and in some parts of the continent of Europe, that many persons employed in dairies were insusceptible to small-pox inoculation and to small-pox infection and that persons thus insusceptible had suffered from a disease known as cow-pox. This was a malady of the teats and udder of the cow, exhibiting itself in pustules, which when undisturbed were not unlike those of human small-pox. Public attention was called to these facts by a Gloucestershire physician, who gave much consideration to the matter and made many investigations and some experiments which satisfied him that cow-pox possessed the power of preventing small-pox. He published his conclusions and the world became quickly interested in the matter. Inquiries and observations and experiments made in many countries by many medical men confirmed the value of the preventive means. As time passed it was ascertained that the protection so conferred was not always lifelong and that those who were subsequently attacked by small-pox were likely to have the disease in a remarkably mild form. These conclusions have been confirmed and elaborated by the world-wide experience of a century. It has been found that vaccination (which is the name applied to the operation) is for a number of years an absolute protection to the great majority of the vaccinated; that at later ages, when small-pox attack becomes possible to many once vaccinated persons, the great majority of such attacks are very mild; that the amount of protection corresponds to the thoroughness of the operation; and that repetition of the operation renews the protection. For nearly a decade before 189 Gloucester had grossly neglected this protection, not only among its adult population, as so many other towns have done, but also amongst its young children, as very few other towns have done. It had trusted

to its cleanliness and to its hospital for preventing small-pox and had sent representatives to London to tell the Royal Commission of these opinions and of the town's freedom from small pox. Then small-pox came. In a population of 40,000 there were 2000 attacks. Perhaps 2000 more had previously suffered from the disease and possibly some minute percentage were constitutionally insusceptible, so that there were still 35,000 or 36,000 persons open to attack. The disease began with a single case in June, 1895, but there were no more till August and not much anxiety was created until towards the end of the year. Removal of all known cases to hospital, quarantine of exposed persons, disinfection of houses, destruction of infected articles, or, in other words, the so-called Leicester system, were found powerless to stop the ravages of the pestilence. The growing alarm resulted in renewed resort to the method of protection which had been promulgated in Gloucestershire a century before and which had been so long neglected in the county town. A return of vaccinations performed in Gloucester between January 1st, 1896, and July 11th, 1896, was prepared by the board of guardians and is quoted in Dr. Coupland's Report. It is as follows:—

GLOUCESTER BOARD OF GUARDIANS.

Return of Vaccinations and Re-vaccinations from Jan. 1st, 1896, to July 11th, 1896, as Ascertained from all known Sources.

Vaccinators.	Primary.	Re-vaccination.	Total.
Vaccination inquiry office staff	756	1,098	1,854
Public vaccinators	5,477	12,423	17,900
Corporation staff	424	956	1,380
* Private practitioners	1,827	11,875	13,702
Total	8,484	26,352	34,836
Number of children, ten years and under, who are stated to have been vaccinated in infancy	1,072	—	1,072
Total	9,556	26,352	35,908

* From one medical practitioner no returns at all were received.

Thirty-five thousand people in Gloucester who had never had small-pox escaped the disease notwithstanding the presence of hundreds of sources of infection and although many thousands of them lived in conditions alleged to be highly insanitary and strongly predisposing to small-pox. Thirty-five thousand people in Gloucester were vaccinated in the midst of the existing infection and in presence of these alleged insanitary conditions. Though, as has already been said, a small percentage of persons may be constitutionally insusceptible to small-pox, and though in probably every epidemic a number of susceptible persons do not suffer, yet to all intents and purposes the 35,000 who were thus vaccinated were the 35,000 who escaped small-pox. There never was a rule without an exception. Eight persons who had been successfully re-vaccinated were attacked between fourteen days and three months after their re-vaccination. All recovered and none had confluent attacks. As to primary vaccination, excluding cases vaccinated too late, after the poison of small-pox was already in their blood, the only recently vaccinated exception yet brought forward appears to be the case of a little girl who was attacked by fatal small-pox three weeks and two days after her vaccination. This case is specially pointed out by Dr. Coupland. Dr. Hadwen describes a child named Sabin as "an instance" and a "striking illustration" but not as an entirely unique experience in the Gloucester epidemic.[1] Such are the exceptions. The rest of the 35,000 are the rule.

In presence of the facts regarding these 35,000 persons is it possible for any man not wanting in reason or distorted in intellect or misled by unscrupulous misstatement and misrepresentation, to arrive at any other conclusion than that the cause of the abrupt decline of the Gloucester epidemic was the rapid and extensive vaccination which was carried on in Gloucester in presence of the epidemic? With cause and effect so manifest the absurdity of suggesting the rains of August or the water-supply of July in explanation of a decline which was most striking in the preceding May and June is, if that were possible, even more ridiculous than before.

It is not proposed here to point out how in Gloucester, as in Leicester and in Dewsbury and everywhere else, small-pox differentiated between the vaccinated and the unvaccinated; how in households containing cases of the disease the infection attacked the unvaccinated children and passed by the vaccinated children in proportions altogether out of correspondence to their numbers; how the fatality among the attacked was much higher in the unvaccinated than in those whose vaccinal protection had so far spent itself as to leave them open to attack; how this occurred notwithstanding the allegation that vaccination weakens the system and makes the vaccinated an easy prey for all diseases; how the difference between the unvaccinated and the vaccinated was greater according to the recency of the vaccination; how those who were well vaccinated with three or four good marks fared better than those who were insufficiently vaccinated with one or two small marks; and how specially vaccinated classes like postmen and policemen, though under exceptional exposure to infection, were exceptionally free from attack. Such are the common experiences of small-pox epidemics. The striking facts about Gloucester are the rapidity and the virulence with which the disease attacked the children of a community which had neglected infantile vaccination, and the rapidity with which the epidemic subsided when the population availed themselves of the vaccinal protection which they had so long despised. The attacked were like the children of the Egyptians under the visitation of the angel of death, while the 35,000 who in the actual presence of the plague observed the ordinance escaped scatheless from the destroyer.

[1] Dr. Hadwen says she was vaccinated in six places and had good marks. Dr. Coupland says he saw her and that she had three marks.

THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

Two lectures have been delivered recently before the above College. The first, on Senile Enlargement of the Prostate Gland, was given by Mr. Charles W. Cathcart, the Conservator of the College Museum, on Friday, Jan. 28th. The lecture was illustrated by many beautiful lantern slides made from photographs of specimens in the museum. Variations in the development of this gland were thus demonstrated and the associated microscopical characters of the hypertrophy were illustrated in a similar way. The lecturer further dwelt upon the lines of treatment which were indicated in the different forms of enlargement.

The second lecture was delivered on Feb. 25th by Dr. Logan Turner upon the Illumination of the Air Sinuses of the Skull and on certain points in the Surgical Anatomy of the Frontal Sinuses. The lecture was based upon a number of observations which Dr. Turner had made upon skulls, cadavera, and living persons both with healthy and with diseased sinuses. The method of illuminating the different sinuses was demonstrated and variations in the development of the frontal air spaces were shown by means of lantern slides. The lecturer first referred to the results which he had obtained from the illumination of the antrum of Highmore in skulls and showed from preparations how inequality in the intensity of the light upon the two sides might arise from anatomical causes, such as a small sinus on one side and a large one upon the other, or even from the absence of the antrum upon one side. In a great number of living persons with presumably healthy antra which he had illuminated he did not once meet with positive illumination upon the one side and with a negative result upon the other. In only one of twelve cases in which there was pus in the antrum was illumination positive on the diseased side and in that case very little pus was present. Turning to the ethmoidal cells he referred to the observations of Ruault, who had pointed out that in illumination from the mouth the nasal bone on the side upon which ethmoid disease existed was in shadow. In the few cases of disease which he had himself tested, this sign was present, but his observations on healthy persons had demonstrated great variations in the illumination of the nasal bones. The sphenoidal sinus could not be illuminated. Forty-three frontal sinuses in adult crania had been

illuminated, mapped out, and then opened by removal of the anterior wall. Half of these were accurately defined by this method. Imperfect and negative results were due as a rule to variations in the thickness and density of the anterior wall of the sinus. Illumination of cadavera—first with the soft parts *in situ* and then with the bone bared—showed that the sinuses could be accurately defined, the soft parts diminishing the brilliancy of the illumination. Both in skulls and in living persons it was not uncommon to find some difference in the intensity of the light in the two sinuses owing to variation in the thickness of the bone. Dr. Turner's experience of illumination in the diagnosis of suppuration of the frontal sinuses was, like that of others, unfavourable. As regards operative treatment, however, if the diseased sinus was illuminated it could be defined before operation and the surgeon might thus be guided in the choice of his method of opening. If the diseased sinus failed to illuminate and the opposite healthy one did so, the septum could thus be defined. The outer limit of the diseased sinus or sinuses which proved negative to illumination could, however, be defined by observing the point at which dulness ceased and illumination began when the lamp was carried outwards under the supra-orbital margin. The supra-orbital margin is thin externally and readily transmits the light. Observations made in a case of double frontal disease and upon skulls negative to illumination showed that the junction of darkness and light when the lamp was manipulated in this way was approximately the outer limit of the sinus. Illumination of the mastoid cells had proved very unsatisfactory in the lecturer's hands and did not appear to be of any clinical value. Many interesting variations in the anatomy of the frontal sinuses were demonstrated upon the screen. Some striking variations in the size of these cavities were shown; in one case a small sinus lay behind the inner third of the supra-orbital margin and in another the cavity extended into the external angular process of the frontal bone and was bounded externally by the temporal fossa. The extreme obliquity of the septum in some cases caused great development of one sinus, while it reduced the other to a slit above the supra-orbital margin. The formation of recesses from the presence of incomplete partitions and the subdivision of a sinus into two, sometimes by a complete vertical partition and sometimes by a horizontal one, were also pointed out and the surgical bearing of all these points was emphasised. The very close relation between the anterior ethmoidal cells and the frontal sinus was also dwelt upon by the lecturer.

THE ARMY MEDICAL DEPARTMENT REPORT FOR 1896.

CONCLUDING NOTICE.[1]

WE do not propose to notice that section of the report dealing with foreign stations at any length. The average strength of the troops stationed at Malta in 1896 (exclusive of the Royal Malta Artillery) was 8316. The admission-rate was 793·9, that of deaths 7·93, and of constantly sick 52·13 per 1000 respectively. Compared with 1895 there was an increase of 22·4 in the admission-rate and of 1·06 in that of mortality per 1000 in 1896, but the constantly sick rate had somewhat declined. As compared with the decennial period rates there was also an increase in 1896 of 138·3 in the admission rate and one of 0·48 and 8·61 per 1000 in the mortality and constantly sick rates respectively.

The fever rates were high. Simple continued fever caused 1572 admissions and 15 deaths and enteric fever caused 49 admissions and 20 deaths, equal to ratios of 5·9 and 2·41 per 1000 respectively. There were 44 admissions for dysentery, but the attacks were generally mild and soon yielded to treatment; no deaths occurred. Venereal diseases gave a total admission ratio of 173·7 per 1000, which is, we regret to observe, above the previous year's rate by 39·2 and the decennial average rate by 48·5, while the constantly sick rate (15·01 per 1000) shows an increase as compared with the corresponding ratio in 1895 and with the average. At Bermuda we notice that the health of the troops had improved in 1896 owing to the decrease of enteric fever. The dry-earth system of latrines is in use, but the senior medical officer considers it unsuitable in the Bermuda climate and recommends that the water-carriage system with sea-water for flushing purposes be adopted. As regards the West Indies, we have already adverted to the increased prevalence of venereal diseases recorded at these stations. Among the troops stationed in China and the Straits Settlements the admissions for these diseases were also very high. Omitting any detailed consideration of the lengthy section of the report dealing with the vital statistics and sanitary conditions of the army in India, we may nevertheless say that the average strength of the troops serving in India in 1896 amounted to 70 484. The loss to India by deaths and invaliding to England was 3012 non-commissioned officers and men, being at the rate of 42·73 per 1000, an increase of 4·60 on the rate in the previous year, and the loss to the army by death and final discharge as medically unfit for further service among the troops in India was 1958, or 27·77 per 1000, an increase of 1·45 on the ratio for 1895.

A great deal has been done, and is still being done, to increase the soldier's comfort and social well-being in India and to improve generally his sanitary environment. We believe that incinerators are largely taking the place of the trench system of disposing of nightsoil, that it will soon become the practice in that country to burn all excreta from enteric fever patients and from cholera cases, which will be far safer than burying these, and that waterworks are being gradually introduced into cantonments so as to enable the troops to get their supply direct from taps instead of through the medium of the bhistie as at present. As regards Egypt and Cyprus the general health of the troops serving in that command in 1896 was good. In Egypt the great improvement noted in the previous year's report still continued. In Cyprus an increase in the ratio of sickness is recorded, but the number of troops in the latter station is small and the figures are therefore liable to fluctuations. As in the preceding year, the admission and mortality rates were higher for Cairo than for Alexandria. Enteric fever caused altogether 97 admissions and 23 deaths, inclusive of 47 admissions and 13 deaths in which the disease was contracted on active service "up Nile," but was not developed until after the return of the troops to Cairo.

The appendix to the volume contains many excellent and interesting papers; among others a Report on the Progress of Hygiene for the year 1897, by Surgeon-Colonel J. Lane Notter, Professor of Military Hygiene at the Army Medical School, Netley; a List of Operations, 1897, accompanied by some illustrative cases with clinical notes and surgical commentaries, by Surgeon-Colonel W. F. Stevenson, Professor of Military Surgery at the Army Medical School, and Surgeon-Major W. Dick, M.B. Edin., Assistant Professor; a General Report of the Medical History of the Chitral Relief Force, by Surgeon-Major-General T. Maunsell, C.B.; one upon the Dongola Expeditionary Force, by Surgeon-Lieutenant-Colonel A. T. Sloggett; and several other reports and papers of interest. We would call attention to Professor Notter's *précis* of the progress of hygiene in 1897, for it is a very useful report, inasmuch as it briefly summarises the main points which have attracted attention during the year under review. We not only advise medical officers to read it, but all who are interested in the subject might advantageously refer to it and glean much useful information. A large number of subjects are noticed, many of them being of a very practical as well as of a more purely scientific nature. Some of the cases received into the surgical division of Netley and described by the professors of military surgery are of an unusually interesting kind. Their report contains three good skiagrams illustrative of the utility of the Roentgen ray photographs in the diagnosis and treatment of fractures. Surgeon-Major-General Maunsell's report of the medical history of the Chitral relief force strikes us as being a well-considered and carefully prepared document, in which a number of subjects bearing upon field medical and hospital administration are considered with the view of remedying defects and introducing improvements in several respects; these, being the outcome of practical experience, merit attention. This is followed by a report on injuries caused by the Lee-Metford rifle observed in the Civil Dispensary, Chakdarah, among the enemy's wounded, by Surgeon-Lieutenant D. W. Sutherland, I.M.S. There are several other interesting

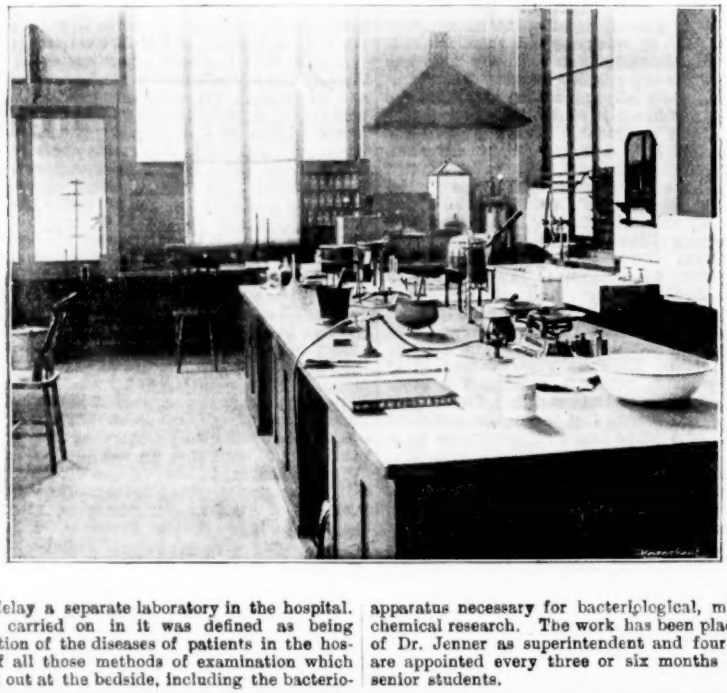
[1] The first and second notices appeared in THE LANCET of Feb. 26th and March 12th, 1898, respectively.

reports in the volume which we are reluctantly compelled to pass over as our space is already exhausted. The volume for 1896 is a good one.

A CLINICAL LABORATORY AT ST. THOMAS'S HOSPITAL.

THE foundation of a clinical laboratory at St. Thomas's Hospital is worthy of record as it appears to be the first instance of such an institution in London. It owes its origin, in the first place, to the increasing complexity and difficulty of the methods employed in the diagnosis of disease. The need of such a laboratory having been pointed out to the treasurer and governors of the hospital they erected without delay a separate laboratory in the hospital. The work to be carried on in it was defined as being (1) the investigation of the diseases of patients in the hospital by means of all those methods of examination which cannot be carried out at the bedside, including the bacteriological examination of the throat in diphtheria and allied conditions both on admission and before discharge; (2) the completion of the hospital record of each patient; and (3) the periodical routine examination of the water and sterilised dressings, &c., supplied to the operating theatres. The laboratory thus has no connexion with the medical school and it plays no direct part in the teaching of students. Its work is entirely devoted to the service of the hospital.

The laboratory, which is shown in the accompanying illustration, was opened in November of last year. It measures 46 ft. by 17 ft. and is lighted by seven large windows, the main frontage facing the east. A third of the room, separated from the rest by a screen of wood and glass, is devoted entirely to bacteriology. The whole laboratory is provided with electric light, teak has been used for the floor and benches, and it is thoroughly equipped with all the apparatus necessary for bacteriological, microscopical, and chemical research. The work has been placed in the hands of Dr. Jenner as superintendent and four or six assistants are appointed every three or six months from among the senior students.



THE NEW VACCINATION BILL.

THE following is the text of the Vaccination Bill which was introduced in the House of Commons on Tuesday, March 15th, by Mr. Chaplin, the President of the Local Government Board. The Bill bears the names of the First Lord of the Treasury, the Home Secretary, and the Attorney-General, as well as that of its introducer.

A Bill to Amend the Law with respect to Vaccination.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same as follows:

1.—(1) The period within which the parent or other person having the custody of a child shall cause the child to be vaccinated shall be *twelve months* from the birth of the child instead of the period of three months mentioned in Section 16 of the Vaccination Act of 1867 and so much of the section as requires the child to be taken to a public vaccinator to be vaccinated shall be repealed.

(2) The public vaccinator of the district shall, if the parent or other person having the custody of a child so requires, visit the home of the child for the purpose of vaccinating the child.

(3) If a child is not vaccinated within *nine months* after its birth the public vaccinator of the district shall visit the home of the child and shall offer to vaccinate the child with glycerinated calf lymph.

2. An order under section thirty one of the Vaccination Act of 1867, directing that a child be vaccinated, shall not be made on any person who has previously been convicted of non-compliance with a similar order relating to the same child.

3. The Local Government Board shall have the same powers of making rules and regulations with respect to public vaccinators (whether under contracts made before or after the *passing of this Act*) as they have with respect to vaccination officers and any rules or regulations made by the Board with respect to vaccination, whether under this or any other Act, shall, while in force, have effect as if enacted by this Act.

4. The enactments mentioned in the schedule to this Act are hereby repealed to the extent specified in the third column of that schedule.

5.—(1) This Act shall not extend to Scotland or Ireland.

(2) This Act shall come into operation on the *first day of January one thousand eight hundred and ninety-nine.*

(3) This Act may be cited as the Vaccination Act, 1898, and the Vaccination Act of 1867, the Vaccination Act, 1871, the Vaccination Act, 1874, and this Act shall be construed together as one Act, and may be cited collectively as the Vaccination Acts, 1867 to 1898.

An appended Schedule shows the Bill to provide the following Repeals:—

Session and Chapter 30 & 31 Vict. c. 84. Short Title—The Vaccination Act of 1867. Extent of Repeal: Section 6; Section 7 from "and shall provide all stations" to the end of the section; so much of Section 8 as fixes the amount of payment thereunder; Section 12; in Section 15, from "according to the provisions" to "performing the operation"; Section 16, the words "within three months after the birth of such child" and from "within three months after receiving" to "period as

aforesaid," and from "and the public vaccinator" to the end of the section; Section 17, to "vaccinations and," and in the same section the words "if the vaccinator so direct," and the words "and inspected as on the previous occasion"; Section 19; in Section 20 the words "brought to him for vaccination"; in Section 29 the words "to take such child or," the words "to be taken," and the words "according to the provisions of this Act."

Session and Chapter 34 & 35 Vict. c. 38. Short title—The Vaccination Act, 1871. Extent of repeal: Section 10; in Section 11 the words "take or" and the words "to be taken."

We have already spoken of the Bill generally; we comment more in detail upon its merits and demerits in a leading article.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6722 births and 4693 deaths were registered during the week ending March 19th. The annual rate of mortality in these towns, which had been 20·7 and 21·1 per 1000 in the two preceding weeks, further rose last week to 21·8. In London the rate was 21·6 per 1000, while it averaged 21·9 in the thirty-two provincial towns. The lowest rates in these towns were 13·8 in Croydon, 15·2 in Burnley, 15·6 in Portsmouth and in Gateshead, and 16·3 in Plymouth; the highest rates were 25·6 in Hull, 25·7 in Liverpool and in Norwich, 27·1 in Swansea, and 30·9 in Oldham. The 4693 deaths included 554 which were referred to the principal zymotic diseases, against 481 and 538 in the two preceding weeks; of these, 251 resulted from measles, 124 from whooping-cough, 60 from diphtheria, 59 from diarrhœa, 31 from "fever" (principally enteric), and 29 from scarlet fever. No death from any of these diseases was recorded last week either in Plymouth or in Halifax; in the other towns they caused the lowest death-rates in Burnley and in Blackburn, and the highest rates in Sheffield, Huddersfield, Oldham, and Leicester. The greatest mortality from measles occurred in London, Bristol, Swansea, Brighton, Leicester, Oldham, and Huddersfield; from whooping-cough in Birmingham, Oldham, Bolton, Huddersfield, Sheffield, and Newcastle-upon-Tyne; and from "fever" in Preston. The mortality from scarlet fever showed no marked excess in any of the large towns. The 60 deaths from diphtheria included 36 in London, 5 in Birmingham, 4 in Cardiff, 3 in West Ham, and 3 in Leeds. No fatal case of small-pox was registered last week either in London or in any other of the thirty-three large towns; and only one small-pox patient was under treatment in the Metropolitan Asylum Hospitals on Saturday last, March 19th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2419, against 2674, 2534, and 2445 on the four preceding Saturdays; 255 new cases were admitted during the week, against 199, 175, and 197 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 425 and 429 in the two preceding weeks, further rose to 430 last week, but were 77 below the corrected average. The causes of 64, or 1·4 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Bradford, Leeds, and in fifteen other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Liverpool, Blackburn, and Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had increased in the seven preceding weeks from 17·4 to 25·0 per 1000, declined to 24·1 during the week ending March 19th, but was 2·3 per 1000 above the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 13·6 in Perth and 17·0 in Aberdeen to 26·4 in Glasgow and in Greenock and 26·9 in Paisley. The 727 deaths in these towns included 21 which were referred to whooping-cough, 17 to measles, 15 to diarrhœa, 10 to scarlet fever, 6 to "fever," and 5 to diphtheria. In all, 74 deaths resulted from these principal zymotic diseases, against 78 and 81 in the two preceding weeks. These 74 deaths were equal to an annual rate of 2·5 per 1000, which was slightly below the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of whooping-cough, which had been 27 and 25 in the two preceding weeks, further declined to 21 last week, of which 19 occurred in Glasgow and 2 in Dundee. The 17 deaths from measles were within 1 of the number in the preceding week and included 16 in Glasgow. The fatal cases of scarlet fever, which had declined from 12 to 7 in the four preceding weeks, rose again to 10 last week, of which 3 occurred in Edinburgh, 3 in Aberdeen, and 2 in Dundee. The 6 deaths referred to different forms of "fever" corresponded with the number in the preceding week, and included 3 in Glasgow and 2 in Greenock. Of the 5 fatal cases of diphtheria 3 were recorded in Glasgow. The deaths from diseases of the respiratory organs in these towns, which had been 142 and 187 in the two preceding weeks, declined again to 158 last week, but slightly exceeded the number in the corresponding period of last year. The causes of 38, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had increased in the four preceding weeks from 28·5 to 37·3 per 1000, declined again to 35·3 during the week ending March 19th. During the past eleven weeks of the current quarter the death-rate in the city has averaged 32·5 per 1000, the rate during the same period being 21·9 in London and 19·8 in Edinburgh. The 237 deaths registered in Dublin during the week under notice showed a decline of 13 from the number in the preceding week, and included 17 which were referred to the principal zymotic diseases, against 16 in each of the two preceding weeks; of these, 7 resulted from "fever," 4 from scarlet fever, 3 from whooping-cough, 2 from diarrhœa, and 1 from diphtheria. These 17 deaths were equal to an annual rate of 2·5 per 1000, the zymotic death-rate during the same period being 3·0 in London and 0·9 in Edinburgh. The deaths referred to different forms of "fever," which had been 7 and 5 in the two preceding weeks, rose again to 7 last week. The fatal cases of scarlet fever, which had been 5 and 6 in the two preceding weeks, declined to 4 last week. The mortality from diphtheria and from whooping-cough corresponded with that recorded in the preceding week. The 237 deaths in Dublin last week included 28 of infants under one year of age and 85 of persons aged upwards of sixty years; the deaths of infants showed a marked decline, while those of elderly persons showed a further increase upon those recorded in recent weeks. Eight inquest cases and 4 deaths from violence were registered; and 89, or more than a third, of the deaths occurred in public institutions. The causes of 14, or nearly 6 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

NAVAL MEDICAL SERVICE.

FLEET-SURGEON BERNARD RENSHAW is placed on the Retired List of his rank.

The following appointments are notified:—Surgeons: P. K. Nix to the *Rodney*; Charles R. Steward to the *Sharpshooter*; William Hackett to the *Vivid*, additional for disposal; Horatio W. Cowan and James H. Fergusson to the *Victory*, additional for disposal; Kenneth H. Jones to the *St. Vincent*, additional for disposal; Reginald Waterfield to the *Vernon*, additional for disposal; Henry W. W. Townsend, Eric D. Macnamara, Archibald W. Campbell, Alfred Woollcombe, and George E. Macleod, all to the *Vivid*, additional for disposal; Godfrey Taylor to the *Cambridge*; John W. Bird to the *Alexandra*, additional for disposal; and Herbert Newsome and Samuel H. Facey to the *Wildfire*, additional for disposal.

ARMY MEDICAL STAFF.

Brigade-Surgeon-Lieutenant-Colonel Steele (retired list) is selected for duty at Bristol. Surgeon-Captain Gray has embarked for service abroad. Surgeon-Captain Bullen proceeds from Kinsale to Sierra Leone for duty. Surgeon-Lieutenant W. E. P. V. Marriott has embarked for duty in India. Surgeon-Major M. D. O'Connell having reported his arrival at Netley on March 18th was taken on the strength of the Royal Victoria Hospital from that date.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Major-General J. Cleghorn (Bengal), Director-General, Indian Medical Service, and Sanitary Commissioner

with the Government of India, has been granted leave out of India for eight months on account of ill-health. Surgeon-Major-General Harvey, Principal Medical Officer of the Punjab Army, will act as Director-General of the Indian Medical Service during Surgeon-Major-General Cleghorn's absence and until further orders. Surgeon-Major R. Ross (Madras) is placed on special duty under the orders of the Director-General, Indian Medical Service. The services of Surgeon-Captain Bensley (Bengal) are placed permanently at the disposal of the Government of Burma. The services of Surgeon-Lieutenant Walton (Bengal) are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty. The services of Surgeon-Captain Grant (Bengal) are placed temporarily at the disposal of the Foreign Department.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major Charles Knott resigns his commission.

VOLUNTEER CORPS.

Artillery: 2nd Glamorganshire: Charles Henry Duncan Morland, M.B. Durh., to be Surgeon-Lieutenant. *Royal Engineers (Submarine Miners):* The Forth Division: Surgeon-Lieutenant R. J. A. Berry, M.D. Edin., resigns his commission. *Rifle:* 1st (Ross Highland) Volunteer Battalion the Seaforth Highlanders (Ross-shire Buffs, the Duke of Albany's): Surgeon-Lieutenant-Colonel A. R. Mackenzie, M.D., retires under the provisions of paragraph 111 of the Volunteer Regulations, 1897, with permission to retain his rank and continue to wear the uniform of the battalion on his retirement.

VOLUNTEER MEDICAL STAFF CORPS.

The London Companies: Surgeon-Captain V. Matthews to be Surgeon-Major.

THE ARMY MEDICAL SCHOOL, NETLEY.

The seventy-sixth or summer session of the Army Medical School, Netley, will commence on Saturday, April 2nd. Thirty-five surgeons on probation will attend the school, twenty for the Army Medical Staff and fifteen for the Indian Medical Service. The following revised lists give the names of those who are to pass through the school:—

ARMY MEDICAL STAFF.

1. W. H. S. Nickerson.
2. G. S. Nickerson.
3. A. E. Weld.
4. J. S. Gallie.
5. G. B. Crisp.
6. H. B. G. Walton.
7. W. Jagger.
8. A. B. MacCarthy.
9. R. Selby.
10. A. E. Taorp.
11. E. J. Dobbin.
12. A. R. O'Flahertie.
13. H. Herrick.
14. C. W. Mainprise.
15. G. J. S. Archer.
16. R. S. H. Fuhr.
17. S. O. Hall.
18. F. J. C. Hefferman.
19. J. Cowan.
20. E. P. Hewitt.

INDIAN MEDICAL SERVICE.

1. T. Hunter.
2. W. R. Battye.
3. H. B. Meakin.
4. G. Hutcheson.
5. R. W. Anthony.
6. G. E. Stewart.
7. H. Boulton.
8. J. W. Watson.
9. G. F. S. Genge.
10. E. F. G. Tucker.
11. W. G. Liston.
12. F. S. C. Thompson.
13. H. J. B. Twigg.
14. C. W. M. G. Orpen.
15. T. S. Novis.

RECRUITING FOR THE ARMY.

The annual report of the Inspector-General of Recruiting for 1897 states that the total number of recruits raised for the year for the regular army was 35,015, as compared with 28,532 in the previous year. The total strength of the Army Reserve on Jan. 1st, 1898, was 82,005, which is 2000 in excess of the number provided by the Army Estimates. The number of men transferred from the colours to the Reserve in 1897 was 16,702, a larger number than in any preceding year since 1893. There has been a gradual falling off in the total strength of the Militia. As regards the employment of ex-soldiers it appears that at the end of 1897 there were 10,541 of these in the service of the various railway companies. The marching of troops through different parts of the country has been favourably reported upon; the conduct of the troops has been excellent and the men have been enthusiastically received. The results from a recruiting point of view are not always immediately felt but are usually manifested subsequently.

THE SOUDAN CAMPAIGN.

Amid the various items of intelligence of a more or less exciting political character and the wars and rumours of war but little had appeared of late regarding the Soudan expeditionary force. An important movement has now, however, been made; and we may hear at any moment of an important battle. The Anglo-Egyptian force, including the British brigade under General Gatacre, is in excellent health and good fettle and there is little sickness of any kind. According to the latest intelligence General Sir H. Kitchener's force had halted at Ras Hudi some six miles up the Atbara river awaiting reports as to the exact whereabouts of Mahmud's army, and on Tuesday, March 22nd, the Sirdar's cavalry had a brush with the enemy whom they drove back.

THE INDIAN FRONTIER WAR.

It was confidently expected that the tribes would submit to the terms proffered them, but animal transport had been sent to Peshawur and the Khyber so as to be prepared for an advance in case of their refusal. Sir William Lockhart recently had an interview with a full representative jirgah of all sections of the tribes, at which he gave them their final choice of peace or war. We are extremely glad to add that the frontier fighting may now be regarded as practically ended, for the Kuki Khels and Kambar Khels have at length complied with the terms imposed upon them.

THE ARMY MEDICAL STAFF WARRANT.

A small committee has been, and still is, sitting at the War Office with the object of formulating a workable scheme for converting the Army Medical Department into a corps, but nothing is yet really known, of course, about its proceedings or as to what will be the result of the inquiry. All rumours on the subject—of which there are several—are simply so many conjectures and medical officers must be content to await an official declaration.

The *Times* says:—"With a view to improving the sanitary administration of cantonments in India and checking the increase of enteric fever, which of late years has been the cause of much anxiety to the medical authorities, the Government has sanctioned the employment, as an experiment, of three specially qualified sanitary officers, who will be posted to Lucknow, Rawalpindi, and Ambala. It will be the duty of these specialists to investigate thoroughly the causes of disease and give practical advice in sanitary matters. Their appointments will take effect from April 1st, and will be for three years in the first instance. The pay will be that of civil surgeons in charge of second-class stations together with an allowance of Rs. 100, rising by annual increments to Rs. 300, and a deputation allowance of Rs. 5 daily when absent from their headquarter stations on public duty."

Surgeon-Captain Henry Dutch, M.D. Brux., has recently given an interesting lecture at the headquarters of the Tower Hamlets Rifle Brigade on bullets and bullet wounds produced in modern warfare and the means by which they are located and removed by the surgeon. The lecture included a demonstration of the use of the x rays in this respect.

The under-mentioned officers of the Indian Medical Service have been appointed Honorary Physicians to the Queen: Surgeon-Major-General C. E. McVittie, I.M.S., vice Surgeon-General Sir W. J. Moore, K.C.I.E., retired list, deceased, and Surgeon-Colonel B. Franklin, C.I.E., vice Surgeon-General W. R. Cornish, C.I.E., retired list, deceased.

The furlough of a number of the officers of the Indian Medical Department has become overdue owing to the stoppage of leave during the Chitral Campaign and the recent frontier expedition.

We hear that about 300 invalids are to arrive at the Royal Victoria Hospital, Netley, from India during this week and that some 600 more are expected shortly.

BRISTOL ROYAL HOSPITAL FOR CHILDREN AND WOMEN.—The Commissioners appointed by Lord Herschell to inquire into the charges preferred against this institution by Dr. W. L. Christie, a former house surgeon, sat last week. The Commissioners were Mr. G. R. Askwith, the Hon. A. Elliot, Mr. V. Williamson, Dr. W. S. Church, and Mr. Timothy Holmes, F.R.C.S. Eng. The charges included mismanagement by the hospital committee and neglect and ignorance on the part of the staff. After an inquiry lasting five days the President read a formal award, in which the Commissioners unanimously concurred, and which was to the effect that the charges generally were not true and were unjustified.

Correspondence.

"Audi alteram partem."

"THE MIDWIVES REGISTRATION BILL."

To the Editors of THE LANCET.

SIRS,—Several points raised with reference to the Midwives Bill call for further notice.

1. *The restriction of practice to registered midwives only.*—A clause for this special purpose is not inserted in the Bill because it follows the lines laid down by the Select Committee on Midwives Registration. It advised that a certain term should be protected and restricted. The point was raised at least a dozen times in the course of its various sittings and is thus referred to in the summary at the end of the 1892 evidence: "It is admitted that unqualified women cannot be prevented by law from practising." The explanation repeatedly given privately was that Parliament would not sanction the formation of a monopoly in such a matter. In only protecting certain terms or titles the Bill follows the precedents set in the Medical, the Dentists, the Veterinary Surgeons, and other similar Acts. Anyone desirous of testing the feeling of Parliament on the matter can easily get an amendment moved to that end. The method adopted in the present Bill has, however, already received the sanction of the House of Lords.

2. *The statutory limitation of the sphere of practice of midwives.*—The insertion of a special clause making it obligatory on midwives registered under the Act to send for a medical practitioner in face of any unusual labour or of any unsatisfactory condition of the mother or child would not be objected to by my committee provided it did not imperil the passage of the Bill if proposed as an amendment. However, one of the main objects of the regulations of practice to be approved by the General Medical Council would be to this end.

3. *Certificates (a) of death and (b) of stillbirth given by midwives.*—(*a*) The acceptance of certificates of death by registrars from unqualified persons could be put a stop to by the mere stroke of a pen if the Registrar-General could be persuaded to issue the necessary order. So long, however, as coroners (to whom such certificates would after refusal be referred) are permitted to issue their certificates without any medical evidence as to the cause of death it is of little use for him to do so. There is, of course, a legal obligation on all persons present at a death to give notice to the registrar within five days and to sign the register. (*b*) The Registration of Births and Deaths Act (1874) permits burials of stillborn children to be carried out on the declaration of a midwife or other person present at the birth. A select committee has reported on this matter and has advised legislation with a view to a better method of certification. Doubtless this is under consideration by the Government and meanwhile it would be impossible to obtain a reform of this magnitude on a side issue.

4. *As to the suggested infringement of the Medical Acts by the registration of midwives.*—(*a*) The Medical Act of 1886 is said to have so affected the standard of midwifery practice that the registration of midwives under Act of Parliament would, in effect, lower the standard intended to be set by the 1886 Act. This Act, however, only raises the standard of education amongst those who desire to go on the Medical Register, making the fact of being on that Register proof of education in all three branches of professional work. The 1858 Act permitted registration to a medical man who was only partly qualified, as in surgery. The public was thereby misled. (*b*) The Medical Register has been recently said to confer upon those registered the exclusive right to practise. This is untrue, and has been recently disproved before a metropolitan stipendiary magistrate. (*c*) The Midwives Bill does not permit persons registered under it to use any of the titles protected under the Medical Acts, nor does it admit to the Medical Register. Therefore it does not infringe the Medical Acts.

I am, Sirs, yours faithfully,
ROWLAND HUMPHREYS,
March 22nd, 1898. Honorary Secretary, Midwives Bill Committee.

To the Editors of THE LANCET.

SIRS,—In answer to Mr. Humphreys I may say, like many other practitioners, that I am sincerely desirous of seeing a settlement of the midwives question. At the same time I cannot congratulate the promoters of the Bill on the provisions it contains. Unless we have an Act which will really prevent ignorant women from *practising* as midwives we shall be no nearer a settlement of the question. If Mr. Humphreys had had as much experience of the working of the Medical Acts as I have had he would at once see the absolute necessity of preventing *unregistered* women from acting in the capacity of midwives. "Parliament will not look at a Bill which legalises a monopoly," says Mr. Humphreys. I, on the other hand, make bold to assert that our legislators will give their assent to a Bill if it can be proved to their satisfaction, firstly, that it is necessary; secondly, that it will prove a boon to the poor women of this country; and thirdly, that it will not act in a harsh or illegitimate way with any particular class of Her Majesty's subjects. If, as Mr. Humphreys asserts, the assumption of the title of Licentiate of Midwifery by a midwife registered under the Act would render her liable to have her name removed from the Register, why did he not recommend his committee to have a clause inserted in the Bill to that effect? I object to the constitution of the Midwives Board because I feel that this is a question affecting the general practitioners of the country and therefore to place the constitution of the board mainly in the hands of consulting physicians and surgeons, who have really no practical experience of the question at issue, is to my mind unreasonable. I have no hesitation whatever in asserting that it would not be difficult to find general practitioners who would be prepared to deal justly and fairly with the whole question.—I am, Sirs, yours faithfully,

March 19th, 1898. T. GARRETT HORDER.

THE CONTAGIOUS NATURE OF ANÆSTHETIC LEPROSY.

To the Editors of THE LANCET.

SIRS,—It is Dr. Impey's opinion that anæsthetic leprosy is not contagious and that the anæsthetic lepers therefore should not be isolated. The following case of Dr. D. Enrique Robelin of Havana, Cuba (Hospital San Lazaro), proves *direct contagion in anæsthetic leprosy.* It is taken from his pamphlet "La Lepra es Contagiosa" (Cronica Médico-Quirúrgica de la Habana, Noviembre y Diciembre de 1887). *That one case proves Dr. Impey to be wrong.*

"I owe the following observation to the courtesy of Dr. Oxamendi; it proves once more that it is not only ulcerous leprosy that is contagious. There are in science numerous observations of leprosy contracted by direct contact with systematised nervous leprosy. In a factory of 260 hands there was a negro, Lorenzo, aged sixty, by nationality a *Gangá*. This negro, in whom appeared all the characters of anæsthetic leprosy, was in due time isolated by the doctors Oxamendi, who were contagionists. Removed to a platane-tree plantation at a kilometre's distance from the factory, he lived very retired apart from the other hands, occupied in the culture of the plantation and raising of poultry. He inhabited a small hut. From the factory there came to visit him very frequently his adopted son, Anastasio, of the *Lucumi* nation; he used to bring victuals and at each visit spent some time with the diseased man in his hut. This man after some time became a leper with the same form of leprosy. The negro Anastasio's wife was a dark creole, the daughter of creole parents, and who had never known anything of leprosy. After a while this woman became a leper, the form being the same as that of her husband's and old Lorenzo's leprosy. These were the only cases of leprosy observed in that house, isolation having prevented the spread of the disease.

"This observation is worthy of our attention. We understand very well that it may be objected that the adopted son could have contracted leprosy, not by contagion, but by hereditv, his parents having been lepers, things about which we know nothing. But is it not strange that the disease should have waited before making its appearance until the man came in contact with another leper? Why did it not appear before? Moreover, to be the son of a leper does not imply that a man must of necessity become a leper. If, however, this case should not be admitted to be one of contagion we have that of the woman whose parents were not lepers and who was born in the country. There is no reason here to deny that the woman was contaminated by her husband and the case may be considered as one of inoculation through coitus. Observe that all three had the same form of leprosy.

"This observation corroborates the opinion, held by some dermatologists, that this form is as contagious as the tubercular. I believed at first that the nervous form was not contagious, but since I have seen certain cases and read about others of recent occurrence I have no longer any doubt on the subject. There exist conclusive observations of inoculation in individuals who, *having punctured anæsthetic spots with pin and knife, were inoculated in their turn, puncturing themselves with the same instruments,* and became lepers after a certain time. For me, in view of recent cases, I believe that this form may be contracted by contagion and inoculation."

I am, Sirs, yours faithfully,
New York, March 18th, 1898. ALBERT S. ASHMEAD, M.D.

INOCULATION OF SMALL-POX.

To the Editors of THE LANCET.

SIRS,—The paragraph headed "Vaccination Extraordinary" in THE LANCET of Feb. 26th, 1898, p. 619, reminds me that in 1881, I believe, there was in Geneva an epidemic of variola, the regulations relative to compulsory vaccination having been to a great extent disregarded. Each time that I saw a small-pox patient in the dwellings of the poor where parents and children were crowded in one or two rooms I inoculated all the unvaccinated inmates of the *appartement*, using the pus of the first well-formed variolous pustule. This I did in the belief that every unvaccinated individual would necessarily take the disease, isolation being impossible. My method was to use the variolous pus in the same way as vaccine lymph, scratching the skin, but not making it bleed much. This was done by me in about forty instances; the inoculations were not attended by any accident and all the cases were very mild, the variola developing nicely with little fever and never being confluent. I believe that at the end of last century the Paris Academy of Medicine condemned inoculation of this kind.

I am, Sirs, yours faithfully,

Geneva, March 1st, 1898. A. CORDES, M.R.C.P. Lond.

THE LATE MR. R. R. CHEYNE AND THE PRESERVATION OF VACCINE LYMPH.

To the Editors of THE LANCET.

SIRS,—In his speech introducing the new Vaccination Bill Mr. Chaplin, referring to the use of glycerine in the preservation of vaccine lymph, seems to imply that the method is of comparatively recent date and of foreign origin. That this is not so I wish to be allowed to point out. As far back as 1849 the idea had occurred to my father, Mr. R. R. Cheyne, F.R.C.S. (of 43, Berners-street and afterwards of 27, Nottingham-place), who after having experimentally proved its value for several months laid it before the profession in a letter to the *Medical Times* dated March 15th, 1850. Some correspondence ensued at the time and in June, 1853, I find my father writing to the same journal saying that he had had the pleasure of showing to the Presidents of the London Colleges of Physicians and Surgeons (Dr. Paris and Mr. Cæsar Hawkins) a case successfully vaccinated with lymph preserved for upwards of six months in this way.

"What we wanted," my father says in a letter to the *Medical Times*, dated March 30th, 1850, "was some liquid *natural* to the animal body; having the power of remaining liquid at common temperatures; neither crystallizable nor disposed to ferment; antiseptic in a marked degree; and, lastly, having the power of easily mixing with the lymph to be preserved." The discovery does not seem to have been taken advantage of by the profession to any great extent, though several public vaccinators availed themselves of the convenience and advantage of the method, until in 1866—sixteen years after my father had first made it known—Dr. Müller, of Berlin, appeared as discoverer and inventor of the use of glycerine to store vaccine lymph by admixture. There was some further correspondence (including a letter to THE LANCET, dated March 13th, 1867, from Mr. A. C. MacLaren, who is still living at No. 60, Harley-street), but the matter once more dropped until now I see it revived again as a novelty of foreign origin. My father is not with us now to have the gratification of seeing the method he introduced sanctioned by authority and adopted by the Government, but I think it only fair to his memory that it should be generally known to whom the merit of the discovery is really due.

I am, Sirs, yours faithfully,

West Norwood, March 19th, 1898. R. CHEYNE.

MR. A. R. WALLACE AND VACCINATION.

To the Editors of THE LANCET.

SIRS,—I thank you for the notice of my pamphlet, "Vaccination a Delusion," in your issue of March 12th, at page 734, and especially for pointing out a verbal error in the introductory passage which, however, has no bearing on the main argument. It shall be corrected in future issues and your notice of it leads me to hope that there are few such errors in the more important parts of the work. I also thank you for giving what purports to be a quotation, being duly enclosed in inverted commas, but which is *not* what I have said and has a different meaning (see p. 13 at top). It is really a compliment to be thus misquoted by an opponent, because it implies such a plentiful lack of fact or argument against the author's real statements or contentions. Besides, it furnishes me with another example, to add to those I have given, of the inaccuracies of the medical profession when dealing with this question. Equally complimentary is it that immediately after commenting upon your own misquotation you run away from my book to quote some quite unimportant portions of my examination before the Royal Commission eight years ago. I tendered evidence on the statistical side of the subject only, but the Commissioners insisted upon questioning me on medical and other matters as to which I knew little or nothing and of which ignorance—not claiming omniscience—I am not in the least ashamed. Again thanking you for your unintentional, but none the less acceptable, testimony as to the unanswerable character of the facts and arguments in my book,

I am, Sirs, yours truly,

Parkstone, Dorset, March 20th, 1898. ALFRED R. WALLACE.

*** WE are glad to hear that Mr. Wallace has now been convinced that typhus fever is not believed to be spread by means of specifically polluted drinking water, though we are really afraid that a plea of "verbal error" can only with very considerable elasticity be made applicable to a statement that "cholera, typhus, and enteric fever are believed to be communicated through the dejecta from the patient contaminating drinking water." We regret, however, that on our part words never intended to have been placed in inverted commas should inadvertently have been so placed, but any one reading our passage side by side with the passage in Mr. Wallace's pamphlet to which he refers would at once see that the former has no pretence whatever to be a quotation from the latter. With Mr. Wallace's contention that when before the Royal Commission he tendered evidence on the statistical side of the subject only, while the Commissioners insisted upon questioning him "on medical and other matters as to which I knew little or nothing," we must join issue. It appears to us that it is exactly the crucial statistical evidence which Mr. Wallace did *not* tender to the Commission, and when asked as to it he confessed a total ignorance of this all-important side of the question, an ignorance which it would seem is equally manifest in his pamphlet. Hence the uselessness of seriously discussing the pamphlet. For Mr. Wallace to adduce statistics such as may suit his own views of the situation, and to abstain from dealing with the evidence upon which belief in the protective value of vaccination admittedly rests, is to adopt tactics which could hardly be expected to meet with much sympathy at the hands of Commissioners bent on elucidating the facts. What would Mr. Wallace say if we professed to furnish expert evidence upon his work "The Malay Archipelago" and admitted in cross-examination that we had only read certain chapters, and those the least important of it? Mr. Wallace laments that we have reverted to his evidence before the Royal Commission, and we do not wonder: it is certainly no more worthy of his great reputation than is the pamphlet to which we have referred.—ED. L.

"ADENOID VEGETATIONS AND LARYNGEAL STRIDOR."

To the Editors of THE LANCET.

SIRS,—An article from the pen of Dr. Eustace Smith relating to diseases of childhood necessarily commands so much attention that I venture to ask for space for a brief criticism of the views expressed by him in his recent paper on Adenoid Vegetations and Laryngeal Stridor.[1] Dr.

[1] THE LANCET, March 19th, 1898, p. 783.

G. A Sutherland and I recently[2] claimed to prove that an affection commonly known as congenital laryngeal stridor depended upon a congenital deformity of the superior laryngeal aperture aided by the flaccidity of the parts in infancy, (not on the latter factor alone as Dr. Smith erroneously interprets our views). If adenoids are the exciting cause of the affection, as Dr. Smith asserts, it is a little surprising that Dr. P. McBride, who examined six cases for Dr. Thomson of Edinburgh, and myself in some twelve consecutive cases have been unable to find them in a single instance. Dr. Smith's contention is weakened and his bias shown by his statement that he always believed these cases were due to adenoids but that until this one case came under observation he had no substantial evidence of it. The typical class of cases described by Dr. Thomson, Dr. Sutherland, and myself form a group *per se* and must be carefully distinguished, as we pointed out, from cases of laryngeal spasm due to adenoids or other form of nasal obstruction. Many details of Dr. Smith's case, apart from the result of treatment, point to its belonging to the latter class. Thus the stridor ceased under chloroform, was much increased in sleep or by closing the mouth as in feeding, and the patient was subject to severe suffocative attacks, these symptoms being characteristic of the adenoid cases and very rare in the affection we have called congenital laryngeal obstruction. Thus Dr. Smith's case in no way controverts our views as to the pathology of the latter affection. Finally, when Dr. Smith states that he believes the affection to be due to spasmodic contraction of the ary-epiglottic folds, and that this is due to irritation set up by the adenoids in the naso-pharynx, I venture with all deference to reply that the spasm in his patient was possibly due to irritation set up by the examiner's finger and laryngeal mirror in the infant's pharynx—a not uncommon reflex.

I am, Sirs, yours faithfully,

elbeck-street, W., March 22nd, 1898. H. LAMBERT LACK.

"GROUND-WATER AND MALARIA."

To the Editors of THE LANCET.

SIRS,—I write to point out that in Chart 2 of my paper on Ground Water and Malaria on page 708 of THE LANCET of March 12th the words "fever rate" and "rainfall in inches" should be transposed, as the first and third lines represent the fever rate, and the second and fourth the rainfall. I shall be much obliged if you will mention this in your next number, as the point is an important one.

I am, Sirs, yours faithfully,

London, March 22nd, 1898. LEONARD ROGERS.

"THE BATTLE OF THE CLUBS."

To the Editors of THE LANCET.

SIRS,—I beg to enclose you a copy of an agreement signed by all the medical men in this town. Hitherto no clubs have been taken on here at less than 5*s.* per annum, but the "Cirencester Working-men's Conservative Benefit Society" is establishing branches here and in the neighbouring villages and will not pay more than 4*s.* 4*d.* per member per annum—if they can help it—and it is to check this that we have combined.

The society went so far as to introduce a medical man into one of the villages, but after a stay of two or three months he left.—I am, Sirs, yours faithfully,

Evesham, March 23rd, 1898. HORACE E. HAYNES.

[ENCLOSURE.]

Evesham, March 16th, 1898.

We, the undersigned, having regard to the "sweating" rates of payment made to medical men by medical aid associations and friendly societies, hereby agree not to undertake after this date to attend any members of such societies in the borough of Evesham at a less rate than 5*s.* per head per annum with 1*s.* fee for examination on entrance, and members of such societies having their headquarters outside the borough at not less than 6*s.* per annum with 1*s.* entrance fee.

ALLEN L. HAYNES.	JOHN S. SLATER.
A. H. MARTIN.	R. HARRISON GILPIN.
HORACE E. HAYNES.	F. LEONARD SESSIONS.

[2] THE LANCET, Sept. 11th, 1897, p. 653.

UNQUALIFIED ASSISTANTS AND THE GENERAL MEDICAL COUNCIL.

To the Editors of THE LANCET.

SIRS,—I am an unqualified medical assistant, have been in the profession forty-five years, and was apprenticed to a firm of surgeons at Nuneaton, Warwickshire, for five years, for which my father paid £500. I then went to Guy's Hospital and completed my hospital curriculum, and went for examination, but unfortunately was rejected. I then was appointed surgeon on a ship, the *Wild Duck*, sailing from London to New Zealand. I had seven voyages in the capacity of surgeon; at the end of my seven years on board I gave up the appointment and obtained an assistancy at Great Bridge, Staffordshire. I attended 2500 cases of midwifery in seven years. I have left Great Bridge twenty-seven years and since that time have been engaged as assistant in very large practices, where I have attended a very large number of midwifery cases. I can say without exaggeration that I have attended personally 5000 cases of midwifery and never had a woman die under my treatment. I am now sixty-five years of age, in very good health, and able to do any amount of day and night work, not having had an hour's illness in my life. On reading the important notice as to the employment of unqualified persons as assistants or otherwise directed to be issued by resolution adopted by the General Medical Council on Nov. 24th, 1897, where it says the foregoing notices do not apply to the legitimate employment of dressers, midwives, dispensers, and surgery attendants under the immediate personal supervision of a registered medical practitioner, will you kindly inform me if I can attend *cases of midwifery*, of course under the supervision of my principals? An early answer will very greatly oblige Yours faithfully,

March 16th, 1898. J. T. L.

*** In our opinion our correspondent's attendance on "cases of midwifery" would subject his principal to the risk of being called to account by the Council. Why should our correspondent not submit his question to the General Medical Council?—ED. L.

HOSPITAL ABUSE.

(BY OUR SPECIAL COMMISSIONER.)

XV.—BRADFORD.[1]

Abuse affecting the Hospital Medical Staffs.—Small Payments Imposed on Poor Patients.—A Paying Clinique for Diseases of the Eye.—The Question of the Municipalisation of the Hospitals.—Charity Patients and their Christmas Dinners.—Patients attended at their Homes by Hospital Surgeons.—Disastrous Competition against Private Practitioners.

BRADFORD boasts of being the seventh largest town in England. In 1882 its population was estimated at 197,103, the birth-rate being 13·59 and the death-rate 21·01 per 1000. In 1892 the population was 219,262, the birth-rate 28·64, and the death-rate 17·91 per 1000. In 1896 the population was set down at 228,809, the birth-rate at 25·94, and the death-rate at 16·77 per 1000. From these figures it will be seen that the attendance at the hospitals should have fallen off considerably, but these institutions, on the contrary, continually boast of their increased usefulness and appeal for more funds so as to extend the scope of their action. It

[1] The previous articles on this subject were published in THE LANCET on the following dates: (1) Sept. 26th, 1896, Plymouth and Devonport; (2) Oct. 10th, 1896, Exeter; (2 *concluded*) Oct. 17th, 1896, Exeter; (3) Oct. 31st, 1896, St. Thomas's Hospital, London; (4) Nov. 14th, 1896, Liverpool; (4 *continued*) Nov. 21st, 1896, Liverpool; (4 *concluded*) Dec. 12th, 1896, Liverpool; (5) Jan. 2nd, 1897, Manchester; (5 *continued*) Jan. 9th, 1897, Manchester; (5 *concluded*) Jan. 23rd, 1897, Manchester; (6) Feb. 6th, 1897, Leeds; (6 *concluded*) Feb. 13th, 1897, Leeds; (7) April 17th, 1897, Coventry; (8) May 1st, 1897, The Royal London Ophthalmic Hospital; (9) May 8th, 1897, France, United Action and Legislative Action; (10) May 15th, 1897, Leicester; (11) June 5th, 1897, Nottingham; (12) July 31st, 1897, Birmingham; (12 *continued*) Aug. 14th, 1897, Birmingham; (12 *continued*) Sept. 4th, 1897, Birmingham; (12 *concluded*) Sept. 18th, 1897, Birmingham; (13) Oct. 30th, 1897, Southampton; (14) March 5th, 1898, Glasgow; (14 *concluded*) March 19th, 1898, Glasgow.

would seem, however, that at Bradford even members of the staffs of the hospitals are beginning to realise that it is necessary to draw the line somewhere. Complaints were made to me that the hospitals tend to develop the belief that the ordinary general practitioner is not competent, or in any case not so competent as the members of the hospital staffs. At first it was thought that such an impression would increase the private practice of the medical men who are attached to the hospitals. But experience shows that patients, instead of referring their relations and friends to the hospital physicians or surgeons, simply bring them to the hospital. This, of course, is more gratifying to the pride, than advantageous to the purse, of members of the hospital staffs. Thus a case was mentioned to me of a hospital surgeon who, being called in for consultation, recommended an amputation and duly received his two-guinea fee. But after this the patient was taken to the hospital, where the same surgeon had to perform the amputation for nothing. Another hospital surgeon had a patient who paid him regularly from £5 to £6 a year for medical attendance. On one occasion this patient broke his leg and he thereupon sought admittance to the General Hospital. The medical man complained to the secretary that this patient could well afford to pay, and consequently the secretary did make him pay—but to the hospital, not to the practitioner. On the other hand, the patient was very angry and on leaving the hospital never sent for that practitioner again. Thus this attempt to prevent hospital abuse resulted in the loss of from £5 to £6 a year in the case of the medical man who was imprudent enough to complain.

There are in Bradford four hospitals supported by voluntary contributions. The General Hospital (or Bradford Infirmary, as it is called), the Children's Hospital, the Eye and Ear Hospital, and the Cancer Hospital and Home for Incurables. Then there are also under the municipality the Infectious Diseases Hospital and under the parish authorities the Poor-law Infirmary. According to the general impression the worst abuse prevails at the Eye and Ear Hospital. Here the number of patients is rapidly augmenting. There were, for instance, 3462 new patients in 1890; five years later the number had increased to 4777. In 1896 there were 4966 and in 1897 no less than 5703. Rule 5 of this hospital states that: "Patients who are not able to pay for private medical advice but who can nevertheless contribute something towards the maintenance of the charity are expected to pay 1*s.* for the first advice and 6*d.* for each subsequent attendance; and in-door patients of the same description shall pay for their board according to a scale to be fixed by the House Committee."

By Rule 3 those who cannot pay these fees and are "properly recommended" are admitted gratuitously. A limited number of private patients are also admitted. The secretary of the Eye and Ear Hospital informed me that though patients were supposed to bring a recommendation a suitable case would not be refused even if the patient had no recommendation. Without drawing a hard-and-fast line they took into consideration the sort of house in which the patient lived, the number of the family, and the weekly earnings. As a general rule they made inquiries when these earnings exceeded 30*s.* a week or 7*s.* a head. A minute passed on Nov. 1st, 1894, says that patients living in houses with a rent of more than 5*s* a week and under 8*s.* a week should pay as stipulated in Rule 5 quoted above. Those who live in houses where the rent exceeds £20 are to be referred to the house committee. Single men who do not earn more than £1 a week may be treated gratuitously. Those who earn from £1 to £1 10*s.* come under Rule 5, and when the earnings exceed that sum the patient must be referred to the house committee. The minute further states that the clerk shall refer all apparently unsuitable cases to the secretary, who shall deal with them or, if necessary, consult the committee; but all applicants are to be attended on their first visits and these restrictions only apply with regard to continued treatment.

On paper these resolutions look very well but in practice they do not work out so favourably. The secretary was perforce obliged to admit, in answer to my questions, that as a rule they had to content themselves with the patient's own statement. In actual practice only two or three full inquiries were made in the course of the year. It is true that two members of the committee visited the hospital at least once a week, and if they saw any doubtful patients they would question them, but on looking down a row of beds how is it possible to recognise doubtful patients? The secretary could not say that anything had been detected during these visits but he thought that the fact that such measures were taken tended to alarm people and thus prevented abuse. The Children's Hospital and the Eye and Ear Hospital, the secretary considered, were better guarded in view of preventing abuse than other hospitals in Bradford. The different scales of payment led to a sort of bargaining with the patients and this necessitated the putting of many questions. Dressmakers, governesses and others often looked as if they could pay for private advice and yet, on questioning, it was found that they were extremely poor and had, as often as not, been sent to the hospital by a medical man. Calling on one of the surgeons belonging to the visiting staff of the Eye and Ear Hospital he frankly stated that undoubtedly there was great abuse but that these cases were often sent in by medical men. He further complained of the system of exacting payments from the patients. This destroyed the charitable character of the hospital. Thus, finding that one of the patients at the Eye and Ear Hospital was a pupil teacher, he asked him what his father did and was told that his father had retired from business. My informant then protested that the patient should not come to a charity, at which the pupil teacher indignantly replied, "Oh! I do not come to a charity. I have paid a shilling." Then there is a great loss of time over trivial cases. Not to mention thousands of people who come simply to try on glasses, there are patients who have no graver complaint than a stye on the eyelid.

Speaking to a general practitioner about the Eye and Ear Hospital he complained that the hospital had no wage limit and that consequently he did not get an eye case once a month. It has been seen that, at least theoretically, there is a wage limit, but this complaint suggests that it is not strictly applied. Thus this same general practitioner when calling on the manager of some important works found that the manager's son had got some spectacles from the Eye and Ear Hospital. My informant protested and in answer to these reproaches the manager replied that he was somewhat ashamed of himself and would not go to the hospital again. Many other similar complaints were made and one of the leading officials of the Charity Organisation Society expressed to me the opinion that the Eye and Ear Hospital was "awfully abused." Subscribers gave tickets of recommendation away most recklessly. In some cases it is well known at the hospitals that the bearer of a ticket can afford to pay for medical advice, but the hospital officials dare not send the patient away for fear of offending the subscriber. Rich subscribers have to be humoured. At the Eye and Ear Hospital many patients come from the country. For instance, one woman from Skipton derived so much benefit that she got up a subscription among her friends and sent a donation of £7 to the hospital. It is not feasible to write to outlying towns and rural districts about the patients who come up to Bradford, for there are not branches of the Charity Organisation Society in all localities by which such inquiries can be made. Of course, abuse is more likely to arise at an eye hospital than at a general hospital because there is a very large class of people who can afford to pay a general practitioner's fee and who cannot pay the fee of an ophthalmic consulting surgeon. To meet this class three young ophthalmic surgeons issued a circular some time ago stating that they would devote a given number of hours per week to clinical work and operations for patient who could pay moderate fees and who were crowding the wards of the Eye and Ear Hospital. If I remember rightly, they charged 3*s.* 6*d.* per consultation and a large number of patients responded to this invitation. It was believed that the general practitioners would prefer sending their patients to these young specialists than to the hospital and that the pressure on the hospital would thus be relieved. But the hospital authorities did not view the matter in the same light. They organised, on the contrary, the strongest possible opposition to the scheme and it had in consequence to be abandoned. Thus the medical charities remained masters of the field and nothing could be done for the patient who can only afford small payments. Yet the Eye and Ear Hospital itself was not started as a charity. It grew out of a private institution created by the late Dr. Bronner. It was converted into a charity of which Dr. Bronner was the principal or first surgeon and on his death the work was continued by his son, Dr. Adolph Bronner, who also made a specialty of diseases of the

ear, nose, and throat. A department for these diseases has been recently instituted at the General Hospital under the same gentleman. The number of patients seen in this department is not, however, very numerous and some doubts are expressed as to whether it was worth opening. In 1896 there were only seventy-five cases and the report of the Bradford Hospital for that year states: "In view of the small number of patients who have attended the infirmary for diseases of the throat and nose the board apprehend that the public may not be fully conscious of the fact that a special department was recently established in the hospital for the treatment of such cases and they desire therefore to invite attention to the circumstance."

This passage has been pointed out to me as lending itself to an interpretation tending to confirm the attacks often made against hospitals by some members of the profession. It suggests an attempt not to meet a demand, but to create a demand, and the question also arises whether in thus calling special attention to a particular department the hospital authorities are not indirectly advertising the medical man in charge of that department.

The Children's Hospital is managed in the same manner as the Eye and Ear Hospital, and has now the same secretary. At first the hospital was established by a sisterhood from Margaret-street, London; but most of the work was done by Mr. Burnie, jun., who then occupied the unusual position of principal surgeon and active honorary secretary of the hospital. He was untiring in his efforts and the new buildings are mainly due to him. At first there were very few patients and here again it seems as if the supply had preceded the demand. Now, however, there were 502 in-patients and 2063 out-patients during the year 1896, which is a small increase on the figures of the previous year. All applicants are asked the amount of the earnings and the addresses of the sick childrens' parents and the greater number of the in-patients are made to contribute towards their maintenance in hospital. The amount paid is sometimes as high as 10*s.* a week but 2*s.* 6*d.* is the more usual sum. The record kept of the earnings of the families shows that the majority do not receive 30*s.* a week. The parents of the sick children must appear before the hospital committee, which meets once a fortnight, to answer questions, and, in fact, to bargain as to what they are to pay for the treatment of their children in the hospital. Out-patients are not charged, and it is only the parents of in-patients who have to appear before the committee. Nor need the patients be provided with a subscriber's recommendation ticket, but they must expect to be severely questioned as to their ability to pay something if the sufferer is to be admitted as an in-patient. Of course this bargaining tends to destroy the charitable aspect of the institution. Indeed, one medical man told me that he had recently had a child in his private practice who had been taken away from the Children's Hospital. The parents explained that they had reckoned the matter up and had found that it would be cheaper to have the child at home and engage a private practitioner than to pay what had been charged at the hospital. Yet, and in the face of facts like this, surprise is expressed when it is found that workmen often refuse to look upon the hospitals as charitable institutions. To the poor the payments are a real sacrifice, while the poor and well-to-do alike conclude that when they pay they are no longer in receipt of charity, and consequently they often complain of being kept waiting and otherwise comport themselves as patrons or clients rather than as persons who are receiving help from a charity. Several medical men with whom I discussed the matter said that in view of exacting payments the control exercised with regard to the in-patients at the Children's Hospital was fairly effective. One practitioner, however, expressed the opinion that this control was only theoretical. For instance, one of his patients had a child suffering from rickets and he prescribed for both mother and child but did not hear any more of them till a year later. He was then called in again to attend the mother. On inquiring about the child he was told that it had been taken regularly to the Children's Hospital where it obtained cod-liver emulsion and maltine. Now this family lived in a house for which they paid a rental of about £20. The father was employed in a wholesale business, two of his children were at work, and they kept a servant. On being reproached for sending their child to the hospital they replied that many persons richer than themselves did the same. Also the question arises whether an ordinary case of rickets should go to a hospital at all. Of course if an operation is necessary that is quite different, but ought the time of the staff to be wasted and the child made to go through the farce of a medical consultation because he or she wants a little more cod-liver oil?

The Cancer Hospital is associated with the name of Dr. Rabagliati, who is gynæcologist and late senior surgeon to the Bradford Infirmary.

All these facts raise the question whether individual medical men should be allowed to start hospitals. Doubtless this is often done from the very best of motives—and I do not attribute other than the best of motives to the gentlemen whose names I have mentioned—but who can analyse motives and who can draw the line between a charity started because there is a genuine public need for such relief or an institution that is needed only in the imagination of a few medical men desirous of securing staff appointments?

One Bradford medical man in large general practice expressed himself in favour of municipal hospitals. Then instead of one big palatial hospital there should be numerous municipal dispensaries spread all over the town. Any fully qualified local practitioner could attend these dispensaries and be paid by the municipality according to the number of patients who chose to consult him. The municipality doubtless would recover these fees from the patients who could afford to pay in the same way as it recovers taxes. Hence every medical man would have his chance and all work done would be paid for. Now the hospitals, run independently of any public control, were too often utilised as a means of advertising some particular set of men and to increase the value of this advertisement patients who could afford to pay were treated gratuitously. Thus an unfair competition is established with the general practitioner. Not only was the money of the benevolent thus employed to advertise one set of medical men while driving another and more numerous section of the profession to ruin and despair, but under the pretext of helping the poor the charitable donors were indirectly subsidising rich manufacturers and other employers of labour. Formerly, at large works, the employer would engage a medical man to attend in case of accidents and give him a retaining fee of £20 to £50 a year. But this is now all stopped. The profession has entirely lost this source of revenue; directly an accident happens the victim is carried off to the hospital. Formerly the employer paid for these accidents and nothing was thought or said about the matter. To-day the employer is relieved of this outlay by the hospital, and by subscribing to the hospital a smaller sum than he used to give to his medical officer, he acquires the reputation being a great philanthropist.

The three hospitals mentioned represent, however, but a small amount of medical work when compared with the Bradford Infirmary. Here the total number of patients attended by the hospital staff amounted in 1896 to 14,908. Though many complaints have been made as to the abuse which prevails at the infirmary, the secretary was very confident in his general tone of conversation and seemed to think that a wage limit was on the whole successfully applied. On the ticket of recommendation the general and the actual weekly earnings should be stated. Where this is not done inquiries are made, but there is no staff to carry out such inquiries and the secretary stated that difficult cases were referred to the Charity Organisation Society. On the other hand, when I inquired at the offices of this society they assured me that they did not get thirty cases referred to them from the hospitals during the course of a year. Supposing, however, that all these cases came from the infirmary, what effect can thirty investigations have on 15,000 patients? Nor could I find that there was any rule establishing a wage limit. The secretary had noted down his own conception of a wage limit but I am not aware that this has been officially endorsed. The secretary considers that a wage of 18*s.* a week should debar a man and wife, 23*s.* a family of three, 28*s.* a family of four; while families of five must not have as much as 35*s.*, and 5*s.* more is allowed for each additional child. He thought that the control on this basis was well maintained and as a proof of this contention pointed out that whereas the Leeds Infirmary, with some 40,000 patients per annum, had only rejected 100 applicants during the course of the year, the Bradford Infirmary, with only 15,000 patients, excluded from 130 to 150 applicants in the same period of time. Abuse, the secretary believed,

occurred most frequently with regard to small accidents such as crushed fingers. The patients ran to the hospital at once for a first dressing. Then, even if they felt disposed, for the subsequent dressings, to resort to private practitioners, the latter were not particularly anxious to take on such cases; for if anything went wrong it would be difficult to say who was to blame—the house surgeon who had attended to the first dressing or the practitioner who had subsequently taken up the case. With regard to paying patients, a rule had been adopted some eight months ago, that paying patients as such were not to be admitted. Formerly domestic servants were charged 10*s.* 6*d.* a week as in-patients; now this sum has been raised to a guinea, but still the medical attendant derives no benefit from such payments. Nevertheless practitioners sometimes in the interest of their clients recommend them to send their servants to the hospital. Now difficulties are made in such cases. Other similar difficulties arise. Thus there was, a little while ago, some trouble about a child who was staying as a guest with friends at Bradford. The child fell ill with periostitis of the shoulder, and could not be sent home, yet at the infirmary they hesitated to take this paying patient. Then there are not a few medical men who prefer to send their serious cases to the infirmary rather than to run up a long bill against a poor patient. Where it is necessary to perform an operation the general practitioner sometimes does not possess the necessary instruments, and again prefers to send his patient to the hospital. But, in these cases, and where the patient is in a position to pay for his treatment at the hospital, the medical attendant should receive a part of such payments.

With regard to the admittance of trivial cases it is urged that this is more excusable where, as at Leeds, there is a medical school; for students must see boils, chilblains, &c., as well as more serious complaints; but there are no students at the Bradford Infirmary. The worst abuse, however, arises from the system of home visits. During the year 1896 the house surgeons paid no less than 28,228 visits to 3052 patients at their own homes. These comprise a very large number of chronic cases, and practically no inquiry is made nor do the visiting staff exercise any control over the juniors who are entrusted with this work. These young men may make any diagnosis and employ any remedy they choose. The patients are therefore no better off than if they engaged the newest and least experienced private practitioners established in the town. A young man who may have passed his examinations only a few months previously has a far larger number of patients placed under his care than it is possible for him to attend properly. He will often have to see fifty or sixty patients in the course of one day and, considering the distances, this is topographically impossible. At most he can only run into the house for a moment and sometimes contents himself with shouting up the stairs an inquiry as to whether more medicine is required and the patient shouts down the reply. Of course, these young medical men may call in one of their seniors to correct or supervise their treatment, but it is well known that juniors are more positive and have greater confidence in themselves than their seniors. It is experience that engenders doubt. In any case, there is not the time allowed for careful treatment. The home work done by these young medical officers from the infirmary was described to me as consisting too often of "a good morning and off again." A general practitioner told me that poor people often came to him offering small fees if he would advise them, because the infirmary surgeon never had time to attend to them properly. Out-patients from the infirmary also came and complained. At their first visit at the infirmary they might be examined, but on their returning they would generally see another medical man, who would only ask if they were better and then scribble something on their card. As for the abuse, this was very obvious. My informant mentioned a case of a woman who was attended at her home by one of the infirmary medical officers, yet she had recently made her will which showed that she was worth several hundred pounds. On another occasion he went to examine a man who wanted to insure his life. This man's wife was very ill and on inquiry he found that she was attended by one of the medical officers from the infirmary, yet these people were earning a good income. Another practitioner who formerly did some of the home work for the infirmary was invited by three private families to their Christmas dinner. They all kept servants; nevertheless he had attended them gratuitously at their homes where he had been sent from the infirmary. One infirmary patient lived in a house where the rent was as high as £60 a year. The infirmary boasts that some five hundred visits are made in a single week to patients in their own homes, and yet there are only two junior medical officers to perform this gigantic task. How can it be done properly? The distance covered measures some four by three miles. Naturally this competition injures the general practitioners very materially. Thus a young medical man established himself in the suburbs of Bradford and the payments he received during the second year amounted to £90 and were steadily increasing. At that time, however, the infirmary extended their home patient boundary-line so that it now included his district. The result was that during the first year after this extension his income dropped to the extent of £50. One small tradesman who had paid him £5 during the course of a year now became a patient of the infirmary visiting medical man. This is illustrative of many other similar cases.

The reckless manner in which employers give recommendation tickets to persons in their employ who are well able to pay accounts for some of the abuse. All warehouse accidents become hospital cases. When the ambulance is sent for it never occurs to any one to ask the patient whether he will be taken home, but he is taken to the infirmary as a matter of course. Even with regard to workmen's families there are so many half-timers that the joint earnings of a family may amount to £3 or so a week, and yet they consider that they have as much right to apply to a medical charity as a workman whose income does not exceed 18*s.* a week. But the creation of a hospital fund with subscriptions regularly levied from working men helps to spread the idea that they have a right to go to the hospital. It is true that at Bradford the workmen's subscription is more generally 1*d.* per month and not, as in many other towns, 1*d.* per week. But again, the issuing of tickets of recommendation in exchange for these subscriptions still further tends to confirm the impression that the right to attend the hospital has been purchased. Also chapel ministers and others get tickets to give to members of their congregations. Practically, the number of tickets, at least for out-patients, is unlimited. Books of forms are given out and are renewed even when the subscription is not renewed. Yet when an applicant for a ticket is not known the person who gives the ticket must believe all he is told, for he is not likely to have the time or inclination to make independent inquiries. Some subscribers, however, have the prudence to hand over all their tickets to the Charity Organisation Society and refer their applicants to this institution. Much education will, however, be required before the donors of recommendations for in-patients will understand that such patients should be really poor, should suffer from some serious disease which cannot be treated at home, and should be in need of rest, quiet, skilled treatment and good nursing.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague in India.

THE plague continues unabated in Bombay and the general health of the city remains unchanged. Pneumonic symptoms are a marked feature in the present stage of the epidemic. It is stated that influenza is prevalent, so that it is possible that the type of plague cases may be unfavourably modified in this way, just as on the other hand the association of plague with relapsing fever seems to favour greater chances of recovery. The mortality from all causes during the past week is recorded at 2080, giving a rate of mortality of 130 per 1000 per annum—the average being at the rate of 44 per 1000 per annum. It is difficult, if not impossible, at present to forecast a decline of the epidemic, because the disease has not yet spread to districts of the city which were affected last year, and comparison with the returns of last year show that possibly the height of this recrudescence has not yet been reached. The rate of mortality among races and castes is as follows:—

	Per 1000 per annum.		Per 1000 per annum.
Jains	204	Mohammedans	117
Brahmins	125	Parsees	75
Bhattias	224	Native Christians	99
Caste Hindoos	133	Europeans	46
Low Caste	187		

It is stated that the difference in mortality between the Mohammedans and Hindoos is due partly to the fact that the former eat more and consume animal food and partly because they do not crowd so much together—otherwise their conditions of life appear to be identical. Bombay is admitted to be the most crowded city in the world and it is not surprising therefore that the district death-rate should vary from 235 per 1000 in Girganna to 12 in Upper Colaba, the latter being the only district having a healthy record. Statements have recently been made that this epidemic will see the last of the plague for the present and that it need not be anticipated next year. Unfortunately the history of plague in India holds out little hope of such a prospect. Some of the older Mohammedan histories and the writings of early European travellers have been examined and they show that in the early part of the seventeenth century the plague lasted eight years. An epidemic seventy years later lasted over six years and again in the early part of the present century it lasted at least six years. Europeans seem to have had the same immunity in the older days as they possess now. Two hundred years ago in an epidemic at Surat the natives were dying in thousands while not one Englishman was affected. The writer of the account ascribes something to the generous wines and costly dishes and to the strength of the aliment on which they fed. Yet he says: "When I consider how languid and feeble several of the English are at some times of the year and, notwithstanding their good food, much less vigorous and athletic in their bodies than the Indians and therefore less able to expel a contagious disease," &c. The accounts of those early days show that the ravages were then much greater than they are now. Often it is stated that half the population were carried off by the disease. In the present epidemic in Bombay notwithstanding that it has now lasted eighteen months, not one-fortieth part of the population has even been attacked with the disease. In other places it may have been more disastrous but certainly nothing to correspond with the descriptions of the older writers.

An Interesting Table.

The following table, which has been drawn up by Brigade-Surgeon-Lieutenant-Colonel Weir, the health officer of Bombay, shows and contrasts the weekly total mortality in Bombay city in the following months of 1897 and 1898:—

Week ending.	1897. Total mortality.	1897. Increase or decrease per cent.	Week ending.	1898. Total mortality.	1898. Increase or decrease per cent.
Jan. 5th...	1711	- 7·66	Jan. 4th ...	1061	+ 8·82
,, 12th...	1638	- 4·26	,, 11th ...	1307	+23·18
,, 19th...	1758	+ 7·32	,, 18th ...	1540	+17·82
,, 26th...	1721	- 2·10	,, 25th ...	1726	+12·07
Feb. 2nd...	1645	- 4·41	Feb. 1st ...	1871	+ 8·40
,, 9th...	1911	+16·17	,, 8th...	2067	+10·47
,, 16th...	1728	- 9·57	,, 15th...	2195	+ 6·19
,, 23rd...	1650	- 4·51	,, 22nd	1974	- 10·06
March 2nd...	1484	- 10·06	March 1st ...	2080	+ 5·36
,, 9th...	1326	- 10·64	—	—	—
,, 16th...	1258	- 5·12	—	—	—
,, 23rd...	1139	- 9·45	—	—	—
,, 30th...	1141	+ 0·17	—	—	—
April 6th ...	1007	- 11·74	—	—	—
,, 13th...	970	- 3·67	—	—	—
,, 20th...	836	- 13·81	—	—	—
,, 27th...	671	- 19·73	—	—	—

March 3rd.

CARDIFF PORT SANITARY AUTHORITY.—In the annual report for the Port Sanitary Authority of Cardiff Dr. Williams states that 6257 vessels had been inspected during 1897; of these 5391 were found to be in a fair or good condition and 866 were in a more or less insanitary state; 16 patients were admitted to the Infectious Diseases Hospital.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Head Constable of Liverpool's Report for 1897.

IN the annual report of the head constable of Liverpool on the police establishment and the state of crime, accidents, &c., in Liverpool for the year 1897 the following statistics are of interest. In the list comprising the number of accidents, &c., reported by the police it is stated that 187 persons were bitten by dogs; 55 persons were burned; 67 fell from buildings; 284 fell into docks, canal, &c.; 610 persons were found by the police in fits and other causes of sudden illness; 12 persons were injured by firearms; 25 were injured in dock works; 199 were injured on dock quays; 355 were injured on board vessels; 336 persons were run over by carts, &c.; there were 189 attempts to commit suicide; other accidents numbered 1224; making a total of 3545 cases reported by the police. 19 persons were rescued from drowning and fire; 9 persons were rescued from drowning, means of restoration being also used. The fatal cases amounted to 177. The total number of cases taken to hospitals, &c., by the police was 2523. First aid was rendered by the police by means of applying bandages in 125 cases; by stopping bleeding in 43 cases; by administering emetics in 22 cases; they also rendered other assistance in 670 cases. Under the Prevention of Cruelty to Children Act 250 persons were arrested without warrant for wilfully neglecting, ill-treating, or exposing children; 120 persons were arrested on warrant issued on first instance; 11 on warrant issued on failure to appear to summonses, making a total of 115 males and 266 females apprehended. 62 males and 90 females were proceeded against by summons. The total number proceeded against amounted to 533. The convictions were distributed as follows: 52 persons were imprisoned for six months and over three months; 107 for three months and over two months; 48 for two months and over one month; 79 for one month and over fourteen days; and 15 for fourteen days and under. 7 individuals were fined and 165 were discharged with or without sureties. Altogether 1166 persons were proceeded against under the Act. The number of apprehensions for drunkenness for the first time amounted to 3807, 2355 males and 1452 females. Of these some were apprehended several times, bringing up the number of apprehensions for the year to 4965, the females predominating after the first arrest.

The Dangers of Water gas.

At the last meeting of the Health Committee Dr. Hope, the medical officer of health, presented a report as to the death on March 11th of a Swedish emigrant who died from suffocation at a registered boarding-house in the south end of the city. The report stated that "at the inquest the question arose as to whether or not the gas supplied to the house was ordinary coal-gas, with which the public are familiar, or whether a more poisonous gas was being supplied. It was admitted that for some time past water-gas had been supplied to that part of the city in varying proportions, and as water-gas contains between 30 to 40 per cent. of carbonic oxide and ordinary coal gas contains about 4 per cent. it is evident that the danger to the public is increased in proportion to the amount of water-gas sent into the dwelling. The public are fairly familiar with the uses and dangers of coal-gas and generally speaking adopt means to protect themselves from those dangers; but at the same time it must not be overlooked that small defects in fittings which might not with the ordinary coal-gas result in injury might reasonably be expected to give rise to serious consequences if a virulently poisonous mixture is without warning to the public or any notice whatever substituted for coal-gas." At the inquest in question Professor Paul of University College, Liverpool, who had made a post-mortem examination of the deceased Swedish emigrant, stated that he found no smell of coal-gas about the body. The whole of the body was of a bright pink colour and there was no blueness or lividity. The colour was due to the effect o carbonic oxide poisoning, to which also he ascribed death which was confirmed by an examination of the blood. In view of fatalities that have occurred a departmental inquiry is at the present time being held into the use of water-gas, and Dr. Hope intimates that, pending the results of this inquiry, it is desirable that carburetted water-gas should

not be sent into dwelling-houses, &c., without ample notice being given for the protection of the consumers.

The New Principal of University College, Liverpool.

Mr. Richard Tetley Glazebrook, M.A., F.R.S., Fellow and Senior Bursar of Trinity College, Cambridge, has been appointed to the post of Principal of University College, rendered vacant by the election of Dr. Rendall to the headmastership of the Charterhouse School. Mr. Glazebrook has had a distinguished university career. He graduated in 1876 as fourth wrangler in the mathematical tripos and was elected Fellow of his College in 1877. He was elected a Fellow of the Royal Society in 1882. He is chairman of the Physics and Chemistry Committee of the Royal Society. Mr. Glazebrook is a Liverpool man and is the son of Mr. Nicholas Glazebrook, an esteemed medical practitioner in West Derby, near Liverpool.

A Cremation Society for Liverpool.

A local branch of the Cremation Society of England has recently been formed here. Mr. William Rathbone has been elected the first president. Among the members of the committee are Sir John Brunner, Bart., M.P.; Dr. William Carter, Dr. Hope, the medical officer of health; the Rev. J. P. Baynes (Church of England), the Rev. Dr. Klein (Unitarian), &c. Cremation is slowly but steadily making headway in Liverpool and, if the clergy of the Church of England could see their way to encourage the practice somewhat, there is no doubt that many timid people would be induced to look more favourably on this healthy mode of disposal of the dead.

The New Gynæcologist to the Liverpool Royal Infirmary.

Dr. T. B. Grimsdale, junior surgeon to the Women's Hospital, Shaw-street, has been elected Gynæcologist to the Liverpool Royal Infirmary in the room of Dr. John Wallace, who has been appointed consulting gynæcological surgeon.

March 22nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Munificent Bequests to the Edinburgh University.

BY the will of Sir William Fraser, K.C.B., LL.D., formerly Deputy Keeper of the Records, a large sum of money has been bequeathed to the University of Edinburgh. The distribution of the money is as follows: the sum of £25,000 is to be devoted for the establishment of a chair to be called the "Sir William Fraser Professorship of Ancient History and Palæography." The arrangements for this chair are left in the hands of the Senatus Academicus, while the nominations to it are vested in the University Court. A sum of £10,000 is left so that the annual income therefrom may be applied for the purposes of the University Library, but not less than two-thirds of the annual income must be applied to augment the salaries of the librarians and other officers connected with the library. The residue of his estate, which includes a sum of £15,000 and may amount in all to between £18,000 and £20,000, is divided into two equal parts, one of which goes to the Edinburgh Royal Infirmary and the other to the University for the general purposes of the University, but more particularly, if it can be arranged, for the foundation of bursaries or studentships for promoting research in historical subjects.

University of Glasgow.

Dr. Snodgrass, who has for some years been Muirhead Demonstrator of Physiology in the University and also Lecturer on Physiology in Queen Margaret College, has intimated his intention to resign these offices.

University of St. Andrews.

The University Court has by a majority sanctioned the proposal to establish a chair of anthropology and anatomy and also a chair of physiology and has instructed the Finance Committee to prepare a scheme for this purpose. The Court has also agreed to institute twelve bursaries of £20 each, tenable for two years, to be awarded to those male medical students who stand highest in the medical preliminary examination in October next. The lectures of Dr. Charles Templeman, University College, Dundee, in Medical Jurisprudence and Public Health have been recognised by the Court as qualifying for graduation in medicine. The Marquis of Bute has intimated his willingness to pay the salary of Miss Umpherston, L.R.C.P. Edin., as Lecturer on Physiology for an additional period of two years in the event of the Court being unable to provide the money from the University funds. "If siller will dae't" St. Andrews may even yet establish a medical school.

The Muirhead Bequest.

It may be remembered that some years ago Dr. Henry Muirhead of Cambuslang, Glasgow, left the sum of £25,000 in trust for the purpose of founding a college for the instruction of women in physical, biological, and medical science. The trustees entered into negotiations with Glasgow University, with Queen Margaret College, also with the directors of the Victoria Infirmary, but from none of these did any practical issue ensue largely because of certain conditions by which the trustees regarded themselves as bound. More recently the trustees have presented a petition to the Court of Session in connexion with a scheme for the establishment of a residential women's college in the immediate neighbourhood of the Victoria Infirmary. Another scheme submitted to the Court contemplates a more limited application of Dr. Muirhead's bequest and the establishment, not of a complete medical school, but of a school of gynæcology open only to women students and associated either with the Samaritan Infirmary or the Victoria Hospital, it being urged on behalf of this proposal that it would conform to the spirit of Dr. Muirhead's will and that the existing arrangements in Glasgow already fully meet the demand for the medical and scientific training of women. The Court has, however, decided that it is the duty of the trustees to found an institution for the instruction of women in physical and biological science and has remitted to Mr. H. Johnstone, Q.C., the duty of making a report upon the scheme proposed in the petition of the trustees.

Scottish Medico-Psychological Association.

A meeting of this association was held in the hall of the Faculty of Physicians and Surgeons, Glasgow, on March 10th, when Mr. Carswell, Lecturer on Mental Diseases in Anderson's College Medical School, read a paper on the Relation of Imbecile Children to Pauper Lunacy, in which he advocated the training and education of feeble-minded children in special schools under the authority of school boards. He contended that such children should be regarded and dealt with as a class entirely distinct from the imbecile and idiot group. In the discussion which ensued Dr. Yellowlees, Dr. Ireland, Dr. Alexander Robertson, and Dr. Hamilton Marr took part, and general and cordial approval was expressed of the decision of the Barony Parish Council to erect a special home for the reception of idiot children. The meeting was presided over by Dr. T. W. M'Dowall of the Morpeth Asylum.

Paisley Convalescent Homes.

The report for the past year intimates that the cost of the extension of the homes now in progress will be upwards of £4000 and thankfully acknowledges the following donations towards the building fund: Mr. James Coats of Ferguslie, £1500; Mrs. Arthur of Bowshaw, £1000; and Mr. Stewart Clark of Kilnside, £500. Mr. Coats has also announced his intention to erect several shelters and verandahs for the comfort of the patients.

March 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Public Health Department of the Dublin Corporation.

AT a meeting of the Dublin Corporation, which was held on March 21st, Sir Charles Cameron gave details as to the recent examination of candidates for the office of sanitary sub-inspector carried out by the Irish Branch of the Royal Institute of Public Health. Certificates were then presented by the Lord Mayor to the twelve successful candidates.

One of the inspectors in the scavenging department of the Dublin Corporation, a general overseer with a salary of £167 per annum, was recently arrested by the Liverpool police and charged at the Southern Divisional Police-court of Dublin on March 18th with having obtained money from his

employers by false pretences. After some investigation and the examination of witnesses the prisoner was remanded, bail being refused.

The Auxiliary Asylum at Portrane.

The largest establishment which has ever been contemplated in Ireland for the accommodation of lunacy patients is now in course of erection at Portrane, an elevated site on the seashore about fifteen miles to the north of Dublin. The mass of buildings, which will cost £170,000, covers an area of 150 acres and displays a frontage towards the south of about one-third of a mile. The buildings are joined together by corridors, so that all parts of the establishment will be accessible from any other part by covered way. This fine structure is being built of red bricks, of which no less than 8,000,000 have been purchased, and it already presents a very imposing appearance surrounded by its domain of 400 acres. In addition to the permanent buildings other erections of a more temporary character were commenced in 1896 in order to relieve with as little delay as possible the congested and overcrowded condition of the Richmond Asylum. These "temporary" buildings are, moreover, of a very substantial character being constructed—at a cost of £20,000—of concrete, brick, and partly of wood. They have been partially occupied for a considerable time and accommodate at present 300 patients (60 females and 240 males) under the charge of the resident medical superintendent, Mr. J. O'C. Donelan. These so-called temporary premises will be retained after the completion of the permanent establishment and will serve in many ways to supplement it.

The Apothecaries' Hall of Ireland.

At a meeting of the Governors and Court of the Apothecaries' Hall held on March 18th the following resolution was passed:—

That the Governor and Court of the Apothecaries' Hall, having heard with great regret of the death of the distinguished Irishman, Sir R. Quain, Bart., M.D., F.R.S., President of the General Medical Council, resolve that a letter be forwarded to the family expressing their deepest sympathy with them in their bereavement and also regretting the loss that the country has sustained in the death of this distinguished physician and apothecary, who has uniformly assisted their body (Apothecaries' Hall) with his advice and support.

The County Infirmaries of Ireland.

One of the most serious omissions from the new Local Government Bill is any reference to the county infirmaries. At present these institutions are supported by grants made half-yearly by the grand juries of the counties in which they are situated and patients are sent from all parts of the county to them. The city of Londonderry, together with five other cities in Ireland, will be constituted a county within itself and will be entirely separate from the county of Londonderry, so that where now there is only one county authority there will in the future be two. At present there is an infirmary in Derry for the county and with a grant from the grand jury, but the number of patients entering it from Londonderry and its neighbourhood, as compared with all the rest of the county, is as 300 to 50. No arrangement is mentioned in the Bill as to whether in future the infirmary will be under the city or county management or under both, nor indeed is there any reference to the other infirmaries of Ireland. The matter, however, is engaging the attention of those most concerned.

Dinner of Trinity College Graduates in Belfast.

The graduates of Trinity College, Dublin, resident in Belfast and Ulster, held their first annual dinner in the Grand Central Hotel, Belfast, on the evening of St. Patrick's Day. The chair was very appropriately occupied by the Lord Mayor of Belfast (Alderman Henderson, J.P.) who is an M.A. of Trinity. The dinner was in every way a great success, except for the speech of Professor Mahaffy. Coming a complete stranger to Belfast, knowing it as little as he is known to the inhabitants of that place, his attack on it was peculiar. He said "he saw no dangers or difficulties in speaking the truth and he thought that great city of Belfast might profit greatly if they cultivated greater freedom of speech. He seldom heard any question mooted in that city but he was told 'this is a very dangerous thing to say. Oh, this will offend somebody, better not tread upon that subject.'" Again, in referring to the vexed university question Professor Mahaffy said, "But if there was to be a Roman Catholic university for Ireland, for what purpose would it be? Was it to educate paupers in the arts? There might be countries such as Scotland in which very poor people learned the arts and became professional men. He (the Professor) had now lived forty years in Ireland and he could say conscientiously that any system of education in the form of a Roman Catholic university which took the poor classes and educated them to leave their own condition in life and become professional men would be not only not to benefit that class of their population but a great mischief. They had to teach their people that it was a much more honourable and respectable thing for a ploughman or a farmer to be a first-rate ploughman or farmer than for him to become a fifth-rate lawyer or parson." In reading such statements, to which another speaker, Mr. James Campbell, Q.C., M.P., objected, one rubs one's eyes and asks, Are we living in the dark ages or near the close of the nineteenth century. No wonder one of the leading Belfast papers suggests that if there is another dinner of Trinity College graduates in Belfast Professor Mahaffy had better be kept away.

The Coroner and the Harbour Commissioners of Belfast.

At an inquest held on March 14th on the body of an iron turner, aged twenty-eight years, whose decomposed body was found in the Clarendon Dock, Belfast, the coroner made some strong remarks on the Harbour Commissioners of Belfast. He said the body was the second yielded up by the Clarendon Dock within a week and he asked how long was this state of things to continue. How long were the Harbour Commissioners to leave their death-traps unprotected? They cared nothing, he said, for the many verdicts of juries condemning their negligence or for public opinion. They had nothing to fear from the Government, for on March 11th in the House of Commons, when attention was called to the last verdict in his court, the Secretary of the Board of Trade stated that his Board had no control over the Harbour Commissioners. If a person were injured on a railway, continued the coroner, the whole paraphernalia of the Board of Trade would be set in motion to inquire whether the railway company had been negligent or not; yet the Harbour Commissioners were allowed with impunity to contribute to the deaths of hundreds. For one death investigated by him from the three railways of Belfast there were twenty from the death-traps of the Harbour Commissioners. The foreman of the jury said the jury were agreed that the cause of death was drowning and also that the Harbour Commissioners were responsible for the death of this man in not listening to the advice of the coroner or that of the juries which had preceded that jury. He added that every person who had any business in the docks could not close his eyes to the fact that at any time men, whether sober or drunk, would be liable to trip and fall into the water. There was no protection of any kind, he said, and they agreed in the verdict that the Harbour Commissioners were responsible. The jury requested the coroner to forward their verdict to the proper quarter.

Queen's College, Belfast.

The winter session in the medical faculty will come to a close at the end of next week, when the class examinations will begin, and on April 26th the first medical examinations of the Royal University will commence in Dublin and go on until the middle of May.

March 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Epithelioma of the Face Successfully Treated by Swabbing with Arsenious Acid.

AT the meeting of the Society of Dermatology held on March 10th M. Hermet showed a patient who in October, 1897, was found to have epithelioma of the face. Arsenious acid was applied, the surface of the ulcer being left exposed to the air after the method of Czerny. The new growth was destroyed by the early days of January, 1898, and cicatrisation was completed by February. The patient had previously been treated by chlorate of potassium without the slightest benefit. Czerny's method employed by M. Hermet consists in using three solutions of arsenious acid in equal parts of water and ethylic alcohol. The first solution, of the strength

of 1 in 150, is applied to the ulcerated surface. The second and third, which are stronger, are applied to the scab. The ulcer is swabbed with the solution every day and excessive pain is kept in abeyance by a hypodermic injection of morphia. When the scab falls off the raw surface is treated as an ordinary wound.

The Exhibition and Medical Congress of 1900.

The President of the Board of Trade has at the request of the Commissary-General just signed the document authorising the congresses which will be held during the exhibition of 1900. They will be divided into twelve sections, of which number six will be entirely devoted to the various medical sciences. A special committee, whose members will be nominated by the Minister concerned, will look after the organisation of the congresses and study the questions to be discussed by them. Their decisions will be laid before another and superior committee in whose hands will lie the general direction of the congresses conjointly with the head of the organising body of the exhibition. The programme of questions to be submitted to the congress or recommendations as to subjects upon which they can most usefully report, the names of the chairmen of the various sections, some idea as to how many sittings will be held, the proposed date of the congress, and a provisional account of the space which will be required for meetings and the like must be sent in to the Administration Office at the latest by Oct. 1st, 1899. A special building within the grounds of the exhibition of 1900 will be reserved for the congress and the various meetings which will grow out of it, so that there will be no repetition of the inconvenience felt in the last congress and exhibition, when, although the greater part of the meetings were held in Paris itself, there were at the same time a number of meetings being held at the Trocadéro.

The Case of Dr. Laporte.

In honour of the happy termination of the case of Dr Laporte the committee of the Syndicate of Medical Men of the Department of the Seine invited the whole *corps médical* to be present at a grand banquet which took place on Monday, March 21st, at the Bonceray Restaurant.

The New Medical School at the Hospital of St. Antoine.

These new buildings, recently designed by M. Renard, the architect to the Assistance Publique, have just been opened but will not be altogether completed for some time. In the theatre of this new clinic Professor Hayent will henceforth hold his classes. The new buildings, the entrance to which is in the Boulevard Diderot, are connected with the old ones by a gallery which opens out of the Moieno block, and it has been erected by a subvention of 250,000 francs levied on the funds of the Paris Mutuel. The medical school is made up of one building thirty-five metres in length and one story high only. The architect has arranged for accommodation of the different departments in accordance with the very latest requirements of science and hygiene. The theatre, which is the largest part of the building, has seating accommodation for 150 students and extends through two stories. The patients are brought in by means of a lift. The amount of light in the theatre can be easily graduated by means of a system of screens. On the ground floor there are provided a room for radiography and electro-therapeutics, a dark room and a chemical laboratory, and on the first floor is a dark room for the examination of cases of diseases of the eye, a gynæcological room, a pathological room, and a bacteriological laboratory. Finally, plenty of space is reserved for museum and other specimens and drawings, so that the students can consult all notes and other documents relating to interesting cases treated in the clinic.

March 22nd.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Actinomycosis of the Lungs.

AT the last meeting of the Berlin Medical Society Dr. Karowski read a paper on Actinomycosis of the Lungs. The disease, he said, appeared in two forms. One of these, the catarrhal form, was due to the germs establishing themselves on the surface of the bronchial mucous membrane, the result being a chronic catarrh of the bronchi with actinomyces present in the sputum. The other form, the destructive one, was of a much more serious character and presented three distinct stages, in the first of which the germs entered into the deeper strata of the bronchi, producing there a destructive peribronchitis. At first the illness is not attended by any well-marked symptoms and it may often be taken for tuberculous phthisis, but the absence of tubercle bacilli and the appearance of actinomycosis fungi in the sputum may establish the diagnosis. Moreover, the area of dulness on percussion is not at the apex of the lung, as in tuberculosis, but is below the clavicle. In the second stage the fungi have come from the lungs to the pleura, producing there an hæmorrhagic exudation. A swelling of the thoracic wall as in empyema is very characteristic. The purulent accumulation may discharge itself either through the skin or through the diaphragm. In the third stage there are metastatic formations in different parts of the body, together with symptoms of general septicæmia. These cases are hopeless. Dr. Karowski then showed a patient who had been sent to him for an alleged sarcoma of the pleura. There was well-marked dulness of the right side and by puncture the presence of actinomycosis was ascertained. An incision was made in the fifth intercostal space, a po n of the sixth rib was resected, the affected skin and muscles were freely removed, and the resulting large cavity was cauterised with Paquelin's thermocautery and dressed with iodoform gauze. The patient was profoundly collapsed after the operation but eventually recovered. At the present time, three months after the operation, he still has a fistula, but actinomycosis fungi are no longer found in the discharge; the cough is only very slight and the patient has increased in weight 5 kilos. (11 lb.). Cases of pulmonary actinomycosis which have been successfully operated on are very rare, but would certainly become more frequent if an early diagnosis were possible.

Meteorological Conditions of Epidemics.

At the same meeting of the Berlin Medical Society Dr. Ruhemann discussed the influence of Meteorological Phenomena on Epidemics. With the help of numerous statistical tables he endeavoured to prove that there is an evident connexion between the incidence of certain infectious diseases and the duration of sunshine within a given period. This is especially the case with influenza, which usually prevails in winter. Dr. Ruhemann has compared the number of cases of influenza under his care with the duration of sunshine observed by the Royal Meteorological Institution and he has found that in the winter of 1894–95 with 1854 hours of sunshine there were 221 cases of influenza in his practice, while in 1895–96 with 3226 hours of sunshine there were only 140 cases, and in 1896–67 with 1617 hours of sunshine there were 252 cases. Dr. Ruhemann alleges that a similar connexion exists in some other diseases—such as measles, scarlet fever, and diphtheria—whilst in pneumonia and rheumatic and puerperal fevers the connexion is less marked.

The Public Health Service.

The anticipated reform of the Public Health Service in Prussia, the principal points of which were described in THE LANCET of April 24th, 1897, p. 1179, seems to be again postponed. In the last sitting of the Prussian Diet the Minister of Public Instruction, Dr. Bosse, said that the Government had abstained from a fundamental remodelling as proposed by the Royal Commission, but that the salary of the medical officers of health will be augmented and the Government medical department, which has hitherto been under the control of the Minister of Public Instruction, will in future be a department of the Home Office. This measure has met with the disapproval of nearly the whole medical press, mainly on the ground that if the public health service ceases to be connected with the universities it will lose its scientific character and that control by the Home Office will have the effect of reducing it to a mere police department. It is remarkable that Professor Virchow, who is a Member of Parliament, recently spoke in favour of the Government proposals.

The Health of Sewing-Machine Workers.

At a recent meeting of the Berlin Society of Public Health Dr. Strassmann, who is a physician to the women's department in the Charité Hospital, read a paper in which he stated that many diseases of the sexual organs were due to over-exertion in the use of the sewing-machine and he

recommended that clauses should be inserted in the factory laws limiting the duration of work to ten hours a day and prohibiting machine work being done during the puerperal and menstrual periods or by girls under sixteen years of age. In the subsequent discussion several of the members expressed an opinion that the ill-effects described by Dr. Strassmann might be ascribed to other causes than the sewing-machine. Dr. Schäffer said that he had observed the same diseases in women who did hard work of a different kind, such as washerwomen, shop girls, &c. The bad health of the majority of sewing-machine workers was in his opinion due not so much to this special work as to the impoverished condition of this class of working women, who are paid from 12 to 14 marks a week for working ten hours a day. Dr. Falk agreed with Dr. Schäffer and mentioned the interesting fact that the statistics of the largest linen factory in Berlin show that the average morbidity of sewing-machine workers was much beneath the average of all the other sick clubs for working people in the city. It was generally agreed that the ill-health of this class of working-women was caused by too long hours of labour, ill-ventilated workrooms, inability to provide themselves with proper food, and want of recreation. All these conditions, although experienced by other classes of working women, pressed especially on sewing-machine workers.

March 22nd.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Dr. Sanarelli's Instructions for the Use of his Serum in Yellow Fever.

BY way of preparation for the "conferenza" at the Madrid Congress next month on the "Bacillus Icteroides and the Sero-therapy of Yellow Fever" Professor Sanarelli has gone to the Brazilian centres of the disease and, at San Paulo in particular, has experimented before a committee composed exclusively of Brazilian pathologists and consultants with his "serum anti-amaryl" (as he calls it) on a *catena* of typical cases. Besides these he will at the "conferenza" in Madrid set forth the results obtained by Dr. Seidl in the San Sebastiano Hospital at Rio Janeiro, where 200 *tubetti* (little tubes) of the "serum anti-amaryl" were put at Dr. Seidl's disposal. Meanwhile I am in a position to give a somewhat detailed report of the instructions Dr. Sanarelli addressed at San Paolo to the Brazilian committee as to the method of using the serum and as to the response to be expected from it. "Good results," he premises, "are difficult to obtain if the treatment be applied when the disease is already advanced, when the 'amaryllic' poison largely accumulated in the organism has already induced those grave anatomical and functional changes which the serum cannot undo and which of themselves suffice to cause death. We must for the present, therefore, restrict our application of the serum exclusively to the first period of the malady." It will be much if good results can be obtained by this early treatment (*trattamento precoce*), from the moment that the practitioner—the diagnosis being complete and no time lost or complications induced by remedies recognised as useless—can intervene immediately and definitely by energetic sero-therapeutic action. It will be still more if the indications then observed will enable us to utilise with success the "serum anti-amaryl" in further stages of the malady. Yet again the serum of animals on which the vaccination has been practised is in no respect hurtful; it can be injected into patients in the desired quantity up to the moment when all hope of success is not yet definitively abandoned. These considerations premised, we begin with a dose of 20 c.c., and if appreciable improvement fail to set in we may inject a second, a third, and even further doses, always being guided by the patient's resisting power, or his general condition, or the "period" of the malady, or the complications, and so on. The injections must be practised subcutaneously in the region of the thighs or nates, but in urgent cases it is preferable to introduce the serum directly into the veins. The veins of the forearm, rendered prominent by a bandage placed below the elbow, are well seen—above all, in lean subjects—and penetration into their cavity is easy with an ordinary "siringa da siero." It is needless to add that these injections must be practised under antiseptic safeguards of the most stringent kind (*sotto la salvaguardia della piu severa antisettica*). Dr. Sanarelli is anxious to establish the efficacy of the "sieroterapia anti-amaryllica" on statistics as carefully sifted as they are copious, and with the view of avoiding premature controversy at once disconcerting and useless he begs his Brazilian brethren carefully to observe the above directions in employing this "serum anti-amaryl," which he places at their disposal in any quantity desired. So far as the experiments initiated by the instructions just given have had effect in the zone of yellow fever referred to the results hitherto obtained, I am informed, have been these: it has been shown that the serum is fatal to the microbe which produces the yellow fever, while it is impotent against the diffused poisoning which multiplies that microbe in the human subject. If previously to that diffusion the microbe can on its earliest appearance be met by a good injection of the anti-amaryllic serum it is at once destroyed and the patient put out of danger. To hit the opportune stage at which injection is efficacious, to surprise the organism at the period when incubation is not yet mature, and to kill the microbe before its proper nidus has attained the diffusion by which the poison becomes general, such should be the practitioner's aim if the serum is to be successful in his hands. But there is no time to lose, yellow fever often running to a final issue in less than two days.

March 18th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The New Professor of Medicine.

THE Turkish Government having asked for a professor of medicine from Germany the Emperor has granted the necessary authorisation to Dr. Rieder of the University of Bonn. The newly-appointed professor is to receive 30,000 francs (£1200) a year. He will also have an assistant, who is likewise a German. The latter is to have a salary of 15,000 francs (£600) a year. Dr. Rieder is charged with the reorganisation of the medical school. Besides their services at the school these gentlemen will also inspect the military hospitals of the city.

Leprosy in the Balkan Peninsula.

Dr. Ehlers, of Copenhagen, states that leprosy is widely diffused in the Balkan Peninsula. This region has long since been reputed as a centre for leprosy, but precise information has not hitherto been obtained on account of the lack of trustworthy statistics. Roumania alone has been noted for correct information and systematic investigation with regard to this question. Dr. Ehlers in the course of a long journey in the Balkans has come across lepers almost everywhere throughout the peninsula. Crete also seems to abound with them. The Cretan lepers, he says, present all the ordinary symptoms of leprosy as seen elsewhere, but the disease is less severe there than it is in the countries of the north. This difference is undoubtedly due to the climate.

Sanitary Mission.

A special sanitary mission, consisting of five medical men, who are already nominated, will soon leave here for Mecca. The object of the mission is to examine the sanitary condition of the pilgrims who will be gathering at the holy places of Islam.

The Congress at Madrid.

The Imperial Government has decided to send delegates to represent Turkey at the Ninth International Congress of Hygiene and Demography to be held at Madrid during next month. The Turkish representatives will be Dr. Mahmoud Pacha and Dr. Djelal Bey. An Imperial Iradé orders their travelling expenses to be paid by the Treasury.

The Imperial Society of Medicine.

Dr. Khorassandjian, who was unanimously elected president of the above society, has resigned. Dr. Bitlis has now been elected to fill that post for the current year.

March 14th.

EXETER DISPENSARY.—The annual meeting of the Devon and Exeter Dispensary was held on Feb. 12th under the presidency of Lieutenant-General Garratt. The financial statement showed a deficiency of £207.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In March the following candidates passed in the under-mentioned subjects:—

Surgery.—F. Atthill (Section I.), Charing Cross Hospital; A. L. Bartram, Cambridge and Westminster Hospital; W. A. Clement, Bombay; F. Golding-Bird, Guy's Hospital; S. R. Hallam, St. Thomas's Hospital; H. L. Heath (Section I.), Toronto and Cambridge; J. H. Jones, Edinburgh; W. Lloyd, London Hospital; and S. H. Longhurst, Guy's Hospital.

Medicine.—T. H. Bailey, King's College Hospital; H. W. Graham, Guy's Hospital; H. L. Heath (Section I.), Toronto and Cambridge; and B. Hogan and W. J. Schuller (Section I.), London Hospital.

Forensic Medicine.—F. G. Aldrich, Charing-cross Hospital; H. W. Graham, Guy's Hospital; H. L. Heath, Toronto and Cambridge; and B. Hogan and W. J. Schuller, London Hospital.

Midwifery.—A. L. Bartram, Cambridge and Westminster Hospital; W. H. I. Bathurst, London Hospital; G. F. M. Clarke, Charing-cross Hospital; H. W. Graham, Guy's Hospital; H. L. Heath, Toronto and Cambridge; A. E. Henchley, Middlesex Hospital; B. Lewitt, St. Mary's Hospital; S. H. Longhurst, Guy's Hospital; P. C. Maitland, Middlesex Hospital; E. Morris, St. Bartholomew's Hospital; H. Munro, Guy's Hospital; and W. J. Schuller, London Hospital.

The diploma of the Society was granted to the following candidates:—Messrs. T. H. Bailey, A. L. Bartram, H. W. Graham, J. H. Jones, W. Lloyd, P. C. Maitland, and H. Munro.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentleman, having previously passed the necessary examinations, and having now attained the legal age of twenty-five years, has been admitted a Fellow of the College:—

Madden, Frank Cole, M.B. Melb., L.R.C.P. Lond., Melbourne University and St. Mary's Hospital.

WESTERN DISPENSARY, BATH.—The annual meeting of the governors of, and subscribers to, the Western Dispensary, Bath, was held on Jan. 25th under the presidency of the mayor. The medical report stated that 892 patients had been attended during 1897; 197 of these were visited at their own homes, necessitating 1304 visits.

CLEVEDON CONVALESCENT HOMES.—The annual report for 1897 shows that the homes now contain 50 beds (28 for women and 22 for men). During the year the Victoria Home for men and boys was opened, leaving the former home, Belmont, for women and children. There were 503 patients admitted in the course of the year. The income was £954 and the expenditure £941.

THE PLAGUE IN BOMBAY.—At a large meeting of Justices held at Bombay on March 15th the Governor delivered a speech on the subject of the proposed new measures for dealing with the plague. He stated that search parties were to be abolished experimentally and all suspicious cases were to be reported by the head men of the various communities. There would be no inspection of corpses or measures entailing delay in the performance of funeral rites.

THE LATE MR. F. W. HANHAM.—Mr. Frederick William Hanham, of Widcombe, Bath, died at Jersey on March 13th, aged sixty years. He received his medical education at Edinburgh and took the qualifications of L.R.C.P. Edin. and L.F.P.S. and L.M. Glasg. in 1864. Mr. Hanham was highly respected at Widcombe. He was senior surgeon to the Bath Lying-in Charity and surgeon to the Southern Dispensary, Bath, being also medical officer for one of the largest districts of the Bath Union. The deceased had recently removed to the Channel Islands for the benefit of his health.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on March 10th, Dr. Macnaughton Jones, President, being in the chair. After some interesting specimens had been shown a demonstration on Micro-Organisms in Relation to the Female Pelvic Organs was given by Dr. George Newman, Lecturer on Bacteriology in King's College. This was illustrated by a series of lantern slides and twenty microscopic specimens under $\frac{1}{12}$ (oil-immersion) lenses.—A paper on Enucleation of Uterine Fibroids, illustrated by lantern slides showing methods of operation and tumours removed, was then read by Dr. W. Alexander of Liverpool.

TAVISTOCK COTTAGE HOSPITAL.—The annual meeting of the Tavistock Cottage Hospital was held on Jan. 25th. The annual report showed that 111 patients had been admitted during 1897, being an increase of 31 on the previous year; 508 out-patients had been treated during the year. The treasurer reported a balance in hand of £58.

PENALTIES FOR OCCUPYING UNCERTIFIED HOUSES.—At Aberdare police-court on March 8th ten occupiers of some new houses at Aberaman were summoned at the instance of the Aberdare District Council for inhabiting the premises prior to their being certified by the local authorities and a penalty of 10*s.* and costs was imposed upon each defendant.

ROYAL INSTITUTION.—Among the lectures announced for delivery after Easter are the following: three lectures on Natural Philosophy, by the Right Hon. Lord Rayleigh, F.R.S., and two lectures on Modern Methods and their Achievements in Bacteriology, by Dr. E. E. Klein. The Friday evening meetings of the members will be resumed on April 22nd, when Mr. W. H. M. Christie, the Astronomer Royal, will deliver a discourse on the Recent Eclipse.

SOUTH-WEST LONDON MEDICAL SOCIETY.—The monthly meeting of the South-West London Medical Society was held at the town-hall, Wandsworth, on March 9th, under the presidency of Mr. T. A. I. Howell, when Mr. C. B. Lockwood read a paper on the "Surgical Treatment of Acute Septic Peritonitis, Localised and Diffused." His remarks were chiefly directed to a consideration of the results of disease of the appendix, and after a careful review of the symptomatology the importance of an early recognition of the disease with a view to prompt surgical interference was strongly urged. The lecture was listened to with much attention, and was followed by a discussion in which the President, Dr. Caldwell Smith, Surgeon-Major Mark Robinson, Dr. Hillstead, Mr. Gay, and others took part. A unanimous vote of thanks was accorded to the lecturer.

FALMOUTH HOSPITAL AND DISPENSARY.—The annual meeting of subscribers and governors of the Falmouth Hospital and Dispensary was held on Feb. 28th. The report showed that the hospital was re-opened to in-patients at the end of March, 1897, after repairs. From that time to the end of 1897 there were 62 admissions of patients; 526 out-patients had been treated, 125 of whom were visited at their homes. The accounts showed that the receipts for 1897 amounted to £452. The expenditure was £415. The report added that in response to a resolution passed at the last annual meeting, inviting all members of the medical profession practising in the borough to become members of the medical staff, acceptances were received from Mr. Barrett, Mr. Jones, Dr. Knuthsen, and Mr. Lidiard. Dr. Knuthsen was appointed to act as surgeon on duty for the year. The committee regretted to state that the medical staff, Dr. Harris, Dr. Banks, Dr. Lanyon, Mr. Moore, and Mr. Owen had resigned. On the motion of Judge Granger it was unanimously decided that these gentlemen should be invited to come back on the staff.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—At a meeting of this society held on March 11th, Dr. E. Seaton, President, being in the chair, Dr. J. Wright Mason read a paper on Secondary and Return Cases of Scarlet Fever. The conditions which give rise to return cases were: (1) imperfect disinfection of clothing; (2) the retention of the poison in the skin, throat, nose, or most often in discharges from the ears of the returning patient; and (3) infection contracted in the hospital just before leaving by patients admitted for other diseases. Those only occurring within fourteen days after the return of the first case should be so described. Direct infection usually showed itself within two or three days, but the more severe the attack the longer was a patient infectious and return cases after home treatment were generally worse than when the first patient had been

in a hospital. They appeared to be more frequent in the autumn, perhaps from premature discharge when the wards were most crowded and they certainly were so when the period of detention did not exceed six weeks and were very rare when it was extended to eight or ten.—An interesting debate followed.

NEWTON ABBOT COTTAGE HOSPITAL AND DISPENSARY.—The annual meeting of subscribers and governors of the Newton Abbot Cottage Hospital and Dispensary was held on Jan. 27th. The report showed that the receipts were £545 and after paying expenses there was a balance in hand of £82. There were 152 admissions of in-patients and 662 out-patients had been treated. The committee had hoped that the new hospital founded by the late Mrs. Fisher would have been completed in 1897 as a memorial of the Queen's long reign, but circumstances prevented the work being finished and the hospital will be opened during the current year. The inhabitants of Newton Abbot and district have subscribed £956 to be invested and called "the Queen Victoria Fund," the income derived from which is to be devoted to the maintenance of the hospital.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on March 4th Dr. Braithwaite, President, being in the chair, many interesting card specimens were shown by Dr. Barrs, Dr. Trevelyan, Mr. C. J. Wright, Dr. Chadwick, Mr. H. Littlewood, Dr. T. Wardrop Griffith, Mr. R. L. Knaggs, and Mr. E. Ward.—Mr. Knaggs then read a paper on four Unusual Cases of Hernia. In one the contents of an umbilical sac had been strangled by a volvulus.—Dr. Wear described and showed specimens of two cases of Blighted Ovum due to Hæmorrhage.—Mr. E. Solly read the notes of a case of Carcinoma of the Kidney in which abdominal nephrectomy had been successfully performed. The effect of the operation upon the urine was interesting; before the operation this was almost pure blood, but after the operation it at once became quite clear, although for the first four days it contained a trace of albumin apparently from a temporary congestion of the remaining kidney.

THE FREE HOME FOR THE DYING, CLAPHAM.—A noteworthy feature of the report of this institution for the past year is the statement that the charity has in no way suffered a serious diminution of funds in consequence of the special Jubilee appeals. This, however, is not so surprising when we consider the nature of the work in which the institution is engaged, for its objects must appeal to everyone. The home is absolutely free and the only passport to admission is a medical certificate to the effect that the applicant is believed to be in a dying condition. No distinction as to nationality, sex, age, or creed is made. During the year 1897 48 patients were admitted to the home, being an increase of 13 over the previous year; of these 30 died, 9 were discharged, and 9 remain. It is unnecessary to state that in such an institution as this the want of room must always be felt, as the number of applications for admission necessarily exceeds the number of beds vacant. Financial help is therefore urgently needed in order that a new and larger home may be built.

NEW YORK SKIN AND CANCER HOSPITAL.—On March 5th the work of the New York Skin and Cancer Hospital was transferred from the dwelling house which has done duty for a hospital for fifteen years to the new buildings at the corner of Second Avenue and Nineteenth-street. As pointed out in the address which was delivered by Dr. L. Duncan Bulkley at the opening ceremony the old city of New York has grown at the rate of 50,000 inhabitants a year for the past ten years but the hospital accommodation had not kept pace with the growth of the city. During the fifteen years the hospital has treated 25,031 patients, of whom 22,159 have been out-patients who have made 118,154 visits to the hospital and for whom 132,263 prescriptions have been written and filled. The 2872 in-patients have spent 165,077 days in the hospital. The new building is a modern fire-proof structure of four storeys and basement, containing about 60 beds for patients; of these 7 are in private rooms. In the basement there is a complete set of baths, including Turkish, Russian, needle, and plunge baths.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Plumbers' Registration Bill.

THE Bill to establish a national system of registration for plumbers has been introduced again this session in the House of Commons by Mr. Knowles.

Money Lending to Medical Men.

The proceedings of the Money-lending Committee on Thursday, March 17th, had a special interest for medical men. On that occasion there was examined Mr. Edward Shuckburgh, money-lender, Bristol, Bath, and Exeter, who told the committee that he is the sole proprietor of the Clerical and Medical Bank. Mr. Shuckburgh was good enough to say that medical men are his best and most frequent customers, that he has a special application form for them, and that before parting with any money to them he takes care to ascertain the extent of their practice and the general state of their affairs. When pressed as to the extent of his business he said he did not think he could have more than £20,000 invested in it.

General Medical Council Accounts.

The accounts for 1897 of the General Council of Medical Education and Registration and its Branch Councils and of the Dental Registration Fund were presented to Parliament on Tuesday, March 22nd, and were ordered to lie on the table.

HOUSE OF COMMONS.

THURSDAY, MARCH 17TH.

Midwives in Ireland.

Mr. Patrick O'Brien asked the Chief Secretary to the Lord-Lieutenant of Ireland whether the Irish Local Government Board still issue an official query list which gives the members of a dispensary committee a loophole to appoint as a district midwife an untrained woman if the medical officer of the district is satisfied as to her fitness; if he would take steps to have this query list withdrawn at once; and, in order to protect the lives of poor lying-in women against the dangers of puerperal fever, if he would secure that in future no dispensary midwife shall be appointed unless she has been properly trained and certificated in the methods provided by modern science.—Mr. Gerald Balfour replied: The query in the form of particulars to which the hon. Member refers inquires whether, if the candidate is not provided with a certificate of competency from a lying-in hospital, the medical officer is satisfied as to her competency and fitness for the appointment. The Local Government Board are most anxious that properly qualified midwives should be appointed in every case and in a circular addressed to dispensary committees in August, 1896, the Board suggested that midwives who had not already undergone a course of instruction in some public lying-in hospital should be afforded facilities for obtaining such instruction. The salaries attaching to the office of dispensary midwife are not sufficient in many instances to attract certificated candidates and I cannot see my way to withdraw the query referred to. I may add it is by no means certain that a sufficient number of certificated candidates would be forthcoming even if the query were withdrawn.

Tuberculosis Commission.

Mr. Balfour, answering a question as to the probable date of the issue of the report of the Royal Commission on Tuberculosis, said that he understood that there was to be a final meeting of the Commission on March 23rd and the report would be signed at no long time after that date. Of course he had no control over the Commission and could only give the best information in his power.

Cigarette Smoking by Children.

Mr. Lough asked the Chancellor of the Exchequer whether he was aware that at many general shops in which tobacco was sold it was customary to give children of nine or ten years of age who bought other goods free cigarettes and whether a regulation could be introduced which would make the licence of any tobacconist liable to forfeiture who gave tobacco in any form without receiving direct money payment to children under sixteen years of age.—The Chancellor of the Exchequer replied that he was not aware of the practice, that there was no provision in the law for attaching such a condition as the hon. Member suggested to the grant of a tobacco-dealer's licence, and that he saw no ground for legislating on the subject.

FRIDAY, MARCH 18TH.

Prosecutions for Food Adulteration.

Mr. Duckworth asked the President of the Local Government Board whether he was aware that in the course of a fortnight three separate analyses of the analyst of the Islington Vestry were proved to be inaccurate when the samples dealt with were referred to Somerset House and whether the Local Government Board would take any steps to inquire into mistakes which so seriously affect the tradesmen against whom summonses were issued upon such mistaken certificates.—Mr. Chaplin replied: I have already taken steps to inquire into the cases referred to and I find that the analyses by the public analyst of these cases did not accord with those made at the Government Laboratory and the cases were dismissed, the defendants being awarded costs. It would be impossible to go into the details of these cases as represented by the vestry and the chief officer of the Government Laboratory within the limits permissible in an answer to a question. Under the existing law the court in any case where proceedings are instituted in respect of alleged adulteration can on the application of either party refer the sample to the officers of the Board of Inland

Revenue with a view to its being analysed and reported on by them, and in the cases in question the defendants had the benefit of this provision, but I have no authority to give any directions whatever in the matter. I understand that in one case there will be an appeal to the High Court.

Sending Children to Canada.

Dr. Farquharson, on behalf of Sir Charles Cameron, asked the Secretary of State for the Colonies whether he had made any representations to the Government of the Dominion of Canada respecting a law recently passed by the Government of Ontario forbidding the bringing of young persons under eighteen years of age into that province with a view of finding homes or situations for them, under a penalty of $100 or three months' imprisonment; and whether he had asked for any legal opinion as to the legality of the prohibition, in view of the fact that Dominion law permitted girls from twelve years of age and boys from fourteen to select their own place of residence.—Mr. Chamberlain replied: The law referred to in the hon. Member's question does not forbid bringing into the province young persons under eighteen years of age unless from physical or mental defects they are unable to follow any trade or calling, or unless they are of known vicious tendencies, habitual criminals, or have been reared or have resided amongst habitual criminals, or are the offspring of habitual criminals, lunatics, or confirmed paupers. I have forwarded to the Dominion Government representations on the subject of the law from various philanthropic agencies engaged in emigrating children to Canada. The matter, including the question whether the law conflicts with the Dominion law, is entirely one for them to consider.

MONDAY MARCH 21ST.

Medical Expert for the Prisons Board.

Mr. Pickersgill asked the Home Secretary with reference to the statement of the Prison Commissioners dissenting from a recommendation of the Prisons Committee on the ground that the presence of a medical expert on the Board would not facilitate the work of the other Commissioners and would seriously hinder his own, whether he was aware that the Irish Prisons Board included a medical expert, and whether the Commissioners have made inquiry as to the effect of this constitution of the Irish Prisons Board.—Sir M. White Ridley replied: Yes. I was aware of the constitution of the Irish Prisons Board. I may say that every aspect of the question was very carefully considered by me before I decided against adopting the recommendation of the Committee.

TUESDAY, MARCH 22ND.

Drunkenness among London Children.

Mr. Pickersgill asked the Home Secretary whether his attention had been drawn to the fact that 500 children under ten years of age and 1500 children under fourteen years of age were arrested in one year in London for drunkenness; and would he state what information the Metropolitan Police possess respecting the extent of drunkenness among children during the year 1897.—Sir M. White Ridley said he was afraid that the hon. member had been very much misinformed as to his figures. During the four years 1893-96 no children were taken into custody in the Metropolitan Police District who were under the age of twelve and only 73 who were under the age of sixteen years. The figures for 1897 were not yet available.

The Notification of Infectious Diseases.

Sir John Brunner asked the President of the Local Government Board how many local authorities had adopted the Notification of Infectious Diseases Act and what proportion that number was of the whole number empowered to do so.—Mr. Chaplin replied: The number of districts in which the system of notification is in force is 1649, with a population of nearly 28,000,000, out of 1821 districts, with a population of 29,000,000.

River Pollution.

Sir John Brunner asked the President of the Local Government Board whether the Scottish county councils immediately north of the border were unable to act with the English county councils immediately south of the border for the purpose of the formation of joint committees for the prevention of the pollution of rivers; and if so whether he proposed to introduce a Bill of one clause or whether he would favour the introduction of a Bill of one clause to enable them to do so.—Mr. Chaplin replied: I am aware of the question which has been raised with regard to certain counties. I do not propose to introduce a Bill on behalf of the Government, but I should favour the introduction of such a Bill, or if in committee on the Rivers Pollution Bill a clause were moved with a view of providing for the appointment of a Joint Committee I would raise no difficulties if the terms of the clause appear to be free from objection.

Appointments.

Successful Applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

BENSON, H. T., L.R.C.P. Lond., has been re-appointed a District Medical Officer by the Spalding Board of Guardians.

BENNETT, ROBERT A., M.B. Lond., M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Manchester Hospital for Consumption and Diseases of the Chest.

CHURCH, W. S., M.D. Oxon., F.R.C.P. Lond., has been appointed a Consulting Physician to the Royal General Dispensary, Bartholomew-close, London.

DEANESLY, E., M.D., B.Sc. Lond., F.R.C.S., has been appointed an Assistant Surgeon to the Wolverhampton General Hospital.

DUCKWORTH, SIR DYCE, M.D. Edin., F.R.C.P. Lond., has been appointed a Consulting Physician to the Royal General Dispensary, Bartholomew-close, London.

DYBALL, BRENNAN, M.B., B.Sc. Lond., F.R.C.S., L.R.C.P. Lond., has been appointed Resident Surgical Officer to the General Infirmary, Leeds.

FAIRWEATHER, W. E., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Assistant House Surgeon to the Rotherham Hospital.

FINCH, H. J., L.R.C.P. Lond., M.R.C.S., has been re-appointed an Honorary Medical Officer for the St. Leonard's Hospital, Sudbury, Suffolk.

GAIRDNER, J. FRANCIS R., M.B., C.M. Glasg., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Resident Casualty Officer to the General Infirmary, Leeds.

GRIMSDALE, T. B., M.B. Cantab., M.R.C.S., has been appointed Gynæcologist to the Liverpool Royal Infirmary.

GROVES, E. W. H., M.B. Lond., B.Sc., L.R.C.P., M.R.C.S., has been appointed Medical Officer for the Chewton Mendip Sanitary District of the Wells Union.

HARVEY, GEO., L.R.C.P., L.R.C.S. Irel., has been re-appointed Medical Officer of Health by the Matlock Bath Urban District Council.

HAWTHORN, FRANK, M.D., B.S., M.R.C.S., L.R.C.P., has been appointed Teacher and Examiner of Vaccination at Newcastle-upon-Tyne Educational Vaccination Station by the Local Government Board, vice John Hawthorn, deceased.

HOLDEN, J. S., M.D. Irel., L.R.C.S. Edin., has been re-appointed a Medical Officer for the St. Leonards Hospital, Sudbury, Suffolk.

HUNT, A. H. W., L.R.C.P. Lond., M.R.C.S., has been appointed an Assistant Surgeon to the Wolverhampton General Hospital.

INNES, J. C., L.R.C.S. Edin., has been re-appointed Medical Officer of Health by the Bonsall Urban District Council.

JELLY, G. AUBREY, M.R.C.S., L.R.C.P., L.S.A., has been appointed House Surgeon to the Sunderland and North Durham Eye Infirmary.

JEROME, E. J., L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health for the Camelford Sanitary District of the Camelford Union.

KING, H. D., M.D., B.Sc. Edin., has been re-appointed a Medical Officer for the St. Leonard's Hospital, Sudbury, Suffolk.

MCGRATH, M., L.R.C.P., L.R.C.S. Irel., has been appointed a House Surgeon for the Barrington's Hospital, Limerick, vice J. A. Haran, resigned.

RISDON, G. O., L.R.C.P. Lond., M.R.C.S., has been re-appointed Medica Officer for the Second Sanitary District of the Wells Union.

SCATTERTY, W., M.D. Aberd., has been re-appointed Medical Officer of Health by the Keighley Town Council.

SMITH, SIR THOMAS, Bart., F.R.C.S. Eng., has been appointed a Consulting Surgeon to the Royal General Dispensary, Bartholomew-close, London.

SMYTH, E. J., M.D. Lond., B.Sc., L.R.C.P., M.R.C.S., has been appointed Medical Officer for the No. 4 District and the Buckingham Palace-road Workhouse of the St. George's Union, London.

STANTON, W. E., B.A. Camb., L.S.A., has been re-appointed a District Medical Officer by the Spalding Board of Guardians.

STILES, A. J., M.D. Edin., M.R.C.S., has been re-appointed a District Medical Officer by the Spalding Board of Guardians.

TUCKETT, W. R., M.R.C.S., has been re-appointed Medical Officer for the Charnwood Forest Convalescent Home.

UPPLEBY, J. G., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health for Port Elizabeth, South Africa.

VAWDREY, GEO., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the Farnborough Urban District Council.

VOELCKER, Dr., has been re-appointed a District Analyst under the Fertilizers and Feeding Stuffs Act, 1893, by the Berkshire County Council.

WALLACE, JOHN, M.D. Edin., L.R.C.S., has been appointed Consulting Gynæcological Surgeon to the Liverpool Royal Infirmary.

WAY, MONTAGUE H., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed House Surgeon to Guy's Hospital, London.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon. Salary £150 per annum, with an allowance of £30 per annum for cab-hire, and furnished rooms, fire, light, and attendance.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's-inn-road.—Assistant Registrar, for twelve months.

CHELSEA WORKHOUSE AND INFIRMARY.—Assistant Medical Officer, male or female, for one year. Salary £70 a year, with furnished apartments, rations, washing, coals and gas, and £3 10s. a year in lieu of beer, subject to statutory deduction. Applications to the Clerk to the Guardians, 250, King's-road, Chelsea.

DERBY COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried Salary £100 per annum, rising to £120, with board, lodging, and washing. Applications to B. S. Currey, Esq., St. Michael's Churchyard, Derby.

EAST LONDON HOSPITAL FOR CHILDREN, Glamis-road, Shadwell, E.—Resident Medical Officer for two years. Salary £80 per annum, with board, residence, and laundry. Also Medical Officer for the Casualty Department, for six months. Salary at the rate of £100 per annum.

GOVAN DISTRICT ASYLUM, Crookston, near Paisley.—Senior Assistant Medical Officer. Salary £150 a year, with board. Applications to the Medical Superintendent, Hawkhead Asylum, Paisley.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians.

LIVERPOOL STANLEY HOSPITAL.—Honorary Surgeon.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant Physician and also House Physician. Salary of the latter at the rate of £40 a year, with board and residence.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, London, N.W.—Assistant Resident Medical Officer, for four months. Salary at the rate of £50 per annum, with board, residence, and washing.

ROCHDALE INFIRMARY AND DISPENSARY.—House Surgeon, unmarried. Salary £80 per annum, with board and residence.

ROYAL CORNWALL INFIRMARY, Truro.—House Surgeon, unmarried. Salary, first year, £120, increasing by £10 a year to £150, with furnished apartments, fire, light, and attendance.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London.—Resident Medical Officer for six months. Salary at the rate of £100 per annum, with furnished apartments, board, and washing. Also House Physician for six months. Salary at the rate of £40 per annum, with board, lodging, and washing.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, Ventnor, Isle of Wight.—Assistant Resident Medical Officer, unmarried. Salary £80 per annum, with board and lodging in the hospital. Applications to the Board of Management, London Office, 34, Craven-street, Charing-cross.

SEAMEN'S HOSPITAL, Cronstadt.—Resident Medical Officer. Salary £180 per annum, free lodging, lights, fuel, and attendance. Bachelor or widower without children. Applications to the Chairman of Hospital Committee, British Consulate-General, St. Petersburg.

SURREY DISPENSARY.—Surgeon. Applications to the Secretary, 53, Borough High-street, Southwark, S.E.

THREE COUNTIES ASYLUM, near Hitchin.—Second Assistant Medical Officer, unmarried. Salary commencing at £100 a year, with board, apartments, washing, and attendance.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £80 per annum, rising to £100, with board, residence, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Two Honorary Assistant Physicians.

WORCESTER GENERAL INFIRMARY.—Surgeon.

Births, Marriages, and Deaths.

BIRTHS.

BRAINE.—On March 18th, at Wimpole-street, W., the wife of Charles Carter Braine, F.R.C.S. Eng., of a son.

ELLISON.—On March 17th, at Eton, the wife of W. A. Ellison, M.A., M.D. Oxon., of a son.

GARLICK.—On March 19th, at 3, Gordon-square, W.C., the wife of George Garlick, M.D., of a daughter.

KING.—On March 11th, at 63, Harford-street, Mile End, the wife of Thos. G. King, L.S.A. Lond., of a daughter.

MURPHY.—On March 15th, at The Barons, Twickenham, the wife of H. Howard Murphy, M.D., of a daughter.

POLLARD.—On March 18th, at Parsonage House, St. Margaret-at-Cliffe near Dover, the wife of J. Ellery Pollard, L.R.C.P., of a son.

SINCLAIR.—On March 15th, at New King's-road, Parson's-green, S.W., the wife of A. M. R. Sinclair, M.B., C.M., of a daughter.

TURRELL.—On March 16th, at Cherwell Lodge, Oxford, the wife of Walter J. Turrell, M.A., M.D., of a son.

MARRIAGE.

MURRAY—BRAY.—On March 16th, at St. Paul's Church, Princes'-park, Liverpool, J. J. Geodlatte Murray, F.R.C.S.Ed., of "Eblana," Liscard-road, Egremont, Cheshire, to Isabel, fourth daughter of the late Samuel Bray, Esq., of Alsager.

DEATHS.

DAVENPORT.—On March 16th, at Norfolk Lodge, Guernsey, James Davenport, M.D., late I.M.S., aged 91 years.

WEST.—On March 19th, Charles West, M.D., Founder of the Children's Hospital, Great Ormond-street, aged 81 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 24th, 1898.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo	Maximum Temp. Shade.	Min Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Mar. 18	29·96	W.	...	95	61	48	51	53	Overcast
,, 19	29·85	W.	0·16	67	58	51	49	53	Cloudy
,, 20	30·09	N.E.	...	76	50	39	39	41	Cloudy
,, 21	30·21	S.W.	...	83	52	33	35	37	Hazy
,, 22	30·16	S.W.	...	58	51	36	37	38	Foggy
,, 23	29·81	W.	0·09	64	51	36	37	39	Cloudy
,, 24	29·75	N.	...	81	42	36	37	38	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.).

TUESDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.).

WEDNESDAY (30th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.).

THURSDAY (31st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.).

FRIDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

SATURDAY (2nd).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.) St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (28th).—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Dr. E. Kingscote: The Vagus Origin of Asthma and its Treatment.—Mr. W. H. Battle: Unusual Cases of Renal Calculus.

SOCIETY OF ARTS.—8 P.M. Prof. W. N. Hartley: The Thermo-Chemistry of the Bessemer Process. (Cantor Lecture.)

WEDNESDAY (30th).—SOCIETY OF ARTS.—8 P.M. Prof. S. P. Thompson: Telegraphy across Space.

THURSDAY (31st).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, W.).—8.30 P.M. Mr. J. J. Clarke: The Treatment of Spinal Caries.

FRIDAY (1st).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—Ordinary Meeting. Papers will be read by Dr. S. Eccles, Dr. Bontor, and Mr. Tubby.

LECTURES, ADDRESSES, DEMONSTRATIONS, ETC.

MONDAY (28th).—THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—8 P.M. Dr. J. Priestley: Ventilation, Warming, and Lighting.

LONDON POST-GRADUATE COURSE.—London Throat Hospital, Gt Portland-st., W., 8 P.M., Dr. H. Tilley: Demonstration of Selected Cases (Ear, Throat, and Nose).

ASSOCIATION OF ASYLUM WORKERS (Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.).—Annual Meeting.

TUESDAY (29th).—ROYAL COLLEGE OF PHYSICIANS—5 P.M. Sir R. Douglas Power: On the Principles which govern Treatment in Diseases and Disorders of the Heart. (Lumleian Lecture.)

LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 2 P.M., Dr. Craig: Puerperal, Lactational, and Climacteric Insanities.—Hospital for Skin Diseases, Blackfriars, 4.30 P.M., Dr. Abrsham: Eczema.

WEDNESDAY (30th).—LONDON POST-GRADUATE COURSE.—Parkes Museum, Margaret-st., W., 4.30 P.M., Prof. A. Wynter Blyth: Infectious Diseases.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Acland: Bronchiectasis.

EVELINA HOSPITAL (Southwark-bridge-road, S.E.).—4.30 P.M. Dr. W. S. Fenwick: The Causes and Treatment of Diarrhœa in Children. (Post-Graduate Course.)

THURSDAY (31st).—ROYAL COLLEGE OF PHYSICIANS.—5 P.M. Sir R. Douglas Powell: On the Principles which govern Treatment in Diseases and Disorders of the Heart. (Lumleian Lectures.)
LONDON TEMPERANCE HOSPITAL.—2 P.M. Dr. S. Fenwick: Clinical and Pathological Demonstration to Senior Students.
LONDON POST-GRADUATE COURSE.—Central London Sick Asylum, Cleveland-st., W., 5.30 P.M., Mr. Watson Cheyne: Clinical Lecture.
THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—Mr. E. T. Hall: Sanitary Building Construction.
FRIDAY (1st).—LONDON POST-GRADUATE COURSE.—King's College, 3 to 5 P.M., Prof. Crookshank: Erysipelas and Suppuration.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS, IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

THE PRUDENTIAL ASSURANCE COMPANY.

IN our notice of the report of this society published in THE LANCET of March 12th we commented upon the sum of £100,000 which was to be divided among the members of the out- and in-door staff and expressed a desire to know whether or not the medical referees were included in these bodies, for we considered that the medical men ought to share in the profits of the company on account of its success being in great measure due to the careful way in which they performed their work. Since the publication of this notice we have received information to the effect that the medical referees do not have any share in the distribution of profits. This, we consider, is an injustice that should be remedied at once.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

To the Editors of THE LANCET.

SIRS,—Some time ago I attended a patient who suffered from septicæmia after abortion (of which I knew nothing except from my own personal judgment of the case). The patient subsequently developed abscesses in various parts and one particularly of the fascia above the annular ligament of the left wrist. In consultation with another medical gentleman of this town I operated and gave vent to some deep-seated matter about the flexor tendons. A second operation opening the palmar fascia also became necessary and also a third one over the thenar eminence. In each instance the gentleman above referred to helped me both by giving chloroform and also in holding open the wound during the introduction of the drainage-tube and during the dissection. I sent in my bill when I heard that the husband was about to leave here. He came up, abused me furiously, so much so that I had to restrain myself from putting him out. I then put the matter in the hands of the solicitor who acts as my debt-collector. This gentleman found that the house occupied by my recent patient was vacant. At length his address was ascertained. I sent in my bill with a county-court summons. The ex-patient's husband's solicitor said he would defend this. When the date arrived an adjournment was requested, which my solicitor granted. Meanwhile the husband took an action against me in the High Court, London. At once I instructed my solicitor to apply to the London and Counties Medical Protection Society, fully explaining the case. The society took up the defence for me. When next the county-court occurred there was no defendant to my claim. A judgment summons was issued but could not be served. When the High Court action came on there was no plaintiff and after waiting for weeks and weeks my solicitor wrote to the plaintiff's solicitor asking to have the action against me in the High Court discharged, which was done.

I am only too pleased to be able to publicly record my feeling of thanks and gratitude to the society for their help. Even now there is no payment for my own out-of-pocket expenses or my bill, or for my solicitor, who up to the present is unable to distrain (not that I myself by any means desire this, but simply as a matter of justice and equity). What makes the case worse is that the husband went about this town spreading all sorts of evil reports about my treatment of the case, much to my annoyance and detriment. He insulted me in my own house in such a manner as almost to lead to a breach of the peace, and he has gone away leaving me out of pocket into the bargain. I may mention that I have witnesses who are ready to come forward to prove every word I have written, and I hope that the narration of my own experience will lead other members of the profession to join such an admirable association as the London and Counties Medical Protection Society.

I remain, Sirs, yours faithfully,
March 1st, 1898. J. A. E.

AN ODD ADVERTISEMENT.

THE *Western Mail* of Jan. 20th, 1898, contains the following advertisement under the heading "Medical":—

WANTED immediately, Unqualified Assistant (out-door) in Colliery District, to Visit and Dispense.—Apply, Medicus, care of Mr. Jenkins, Chemist, Wyndham-street, Bridgend.

If Medicus is a medical man he must know that to employ an unqualified assistant to visit his patients has been forbidden by the General Medical Council and will inevitably lead to the removal of his name from the Medical Register. Therefore we describe the advertisement as "odd."

"TWO QUERIES."

To the Editors of THE LANCET.

SIRS,—In reply to the inquiry of "M.R.C.S." in THE LANCET of March 19th about the best bicycle saddle, he will find that there is no absolute best in saddles, but that a man of his weight (18 st.) will probably be suited by the Woods woven wire saddle, made by the Longford Steel Company, Warrington.

As to your correspondent's second question, pure wool underwear suitable for cyclists and rheumatic folks is manufactured by Harrison and Co., Castle Donington, near Derby.

I am, Sirs, yours faithfully,
March 21st, 1898. F.R.C.P.

DR. HADWEN THE PHYSICIAN AND MR. CLAYTON THE HERBALIST.

OUR attention has been called to the following two extracts from a provincial newspaper:—

I.

THE VACCINATION QUESTION.—DR. HADWEN, L.R.C.P., M.R.C.S., L.S.A., of Gloucester, has promised to come. Those that are willing to help please meet at Mallaby's, Victoria Coffee Palace, Linthorpe-road, on Monday evening, at 8.30 P.M. Names can be given at once to Mr. Clayton, 135, Newport-road, Middlesbrough.

II.

A HERBALIST'S DEFENCE.

(To the Editor of the North-Eastern Daily Gazette.)

SIR,—It is not fair to tackle a man in the Council Chamber when the said medical herbalist cannot reply to them. I take full responsibility of all diseases; give sick certificates, death certificates, and have done so for many years. Besides, I have a large practice all over the country. I notify very few deaths, because it is not necessary to go to the cemetery; they go to work. Many men have three doctors, but still I have to get them better. I might say that I have spent some hundreds of pounds on food reform, health reform, social reform, temperance reform, municipal and political reform, and helped with a lot of time many Town Councillors and Aldermen to get into their present position. The drink traffic is killing nine people to one caused by small-pox.

Yours truly,
J. CLAYTON.
135, Newport-road, Middlesbrough, March 17th, 1898.

Our correspondent suggests that what is required now is "A Physician's Defence," for he considers that the whipping-up of persons to support Dr. Hadwen by Mr. J. Clayton, a herbalist who "gives death certificates," constitutes an affront to the profession. We think so, too.

DETERMINATION OF SEX.

IT has been claimed—we put it this way advisedly, for we do not fancy he made the claim himself—that Dr. Schenck could enable a man and woman to have a child of whichever sex was preferred and his "method" was said to lie in some particular way of feeding the woman. In the *Farmer and Stock Breeder* for Feb. 14th—appropriately enough the day of St. Valentine—is a long article by Mr. C. T. Fields Clarke. He claims to be able to regulate

the sex of offspring and his method and rule are most simple. Here they are. Every mammalian female has two ovaries, and as a rule mares and cows give off one ovum at every menstruation alternately from the right and left ovary. The left ovary contains female ova and the right ovary male ova. The first ovum given off at puberty is from the right ovary and therefore a male, and at each succeeding menstruation the sex alters. Therefore all the breeder has to do is to watch carefully for the first menstruation or, to be more certain, to wait for the first calf or foal. Suppose it is a male. If a female is wished for the mother must be served at an odd-numbered menstruation after the birth—i.e., at the first, third, fifth, or seventh. If another male is desired serving must be done at the second, fourth, sixth, and so on. Mr. Clarke claims that long-continued experiments have convinced him that this is one of nature's unerring laws. We should like to know whether he has experimented in the following way. Let him take fifty cow calves, from twenty-five of these let the *right* ovary be completely removed. Then if his theory be right these calves when of an age to have calves of their own will have nothing but cow calves or will not conceive at whatever time they are served. From the other twenty-five let the *left* ovary be removed. Conversely these ought to bring forth nothing but bull calves. We do not say that Mr. Fields Clarke is not correct in his theory, but we cannot agree that his evidence is convincing.

LADY HENRY SOMERSET'S INDUSTRIAL FARM COLONY FOR INEBRIATES.

WE have received the report for 1897 of this excellent foundation. The question of the treatment of inebriates is manifestly a most difficult one and, in our opinion, the best method is the one here adopted. Fresh air, the quiet of the country, and, above all, restraint, exercised in great measure by the patients themselves, are potent remedies for good. The cottage system makes for good in that it shows women who have given way to drink what a comfortable home should be, and the outdoor employment—namely, horticulture in all its forms—gives them an interest in life and brings about a feeling that they can be of use in the world. More cottages are needed, for in 1896 3000 applications had to be refused for want of room. The medical officer, Mr. A. R. Walters, in his report lays stress upon the futility of friends removing patients as soon as they show signs of improvement. This is too soon, for when they get back to their old surroundings they break down, the new habits not being sufficiently established. In connexion with the farm colony is a holiday home for children. Subscriptions and donations may be sent to Lady Henry Somerset, Eastnor Castle, Ledbury, and we may add that the minimum fee for a patient in a cottage is 5s. per week.

AN APPEAL.

IN answer to the appeal (published in our issues of Dec. 18th, 1897, and March 12th, 1898) on behalf of the Misses C. and J. J. Ireland, daughters of a deceased medical man, the following contributions, we are requested to state, have been received:—

	£	s.	d.
The Proprietors of THE LANCET	5	5	0
Mr. C. Terry	5	0	0
Dr. Goddard	2	2	0
Dr. T. D. Savill	1	1	0
Dr. Domett Stone	1	1	0

Other sums received from friends not connected with the medical profession bring up the total amount to £208 6s. It is desired to raise a sum of money sufficient to give the Misses Ireland a small fixed income either by investment or annuity. Further donations will be thankfully received and acknowledged by Mr. Stanley Brown, Cypress House, Dulwich Common, or by Mrs. John Ireland, Bourne End, Bucks.

ADJUSTABLE X RAY TUBES.

IN an interesting paper read before the Roentgen Society Mr. A. A. Campbell Swinton recorded the results of his researches into the construction of x ray tubes, with especial reference to the production of x rays of maximum penetrative value. Adjustable tubes have been constructed enabling the principle to be acted upon that the greater the distance between cathode and anti-cathode the less penetrative and the less the distance the more penetrative are the rays. Mr. Swinton was the first to construct an adjustable tube, but this, he says, has now been superseded by others which have a greater range of adjustment and are consequently to be preferred. Such tubes may now be obtained of most makers of scientific apparatus.

AN ALKALINE DUST STORM.

THE extraordinary dust storm which last month enveloped the Royal Mail steamer *Roslin Castle* some distance off the coast of Africa on her homeward voyage has recently been analysed with some remarkable results. The dust was found to consist chiefly of the chlorides and sulphates and silicates of iron, calcium, magnesium, potassium, and sodium. The dust yielded up alkaline carbonate when treated with water. The solution thus obtained exhibited all the reactions of carbonate of soda. This fact amply accounts for the great discomfort to the eyes and the respiratory passages, apart altogether from the mechanical effects which the passengers, officers, and men on board were so unlucky as to experience.

J. J., M.D.—We comment elsewhere upon the first of the three advertisements sent us. The third received our attention in the last issue of THE LANCET on its appearance in the *Times*. (See THE LANCET, March 19th, p. 835.) The second one is capable of explanation, otherwise we may presume that the medical man would not have put his name to it. The duties to be discharged by the qualified assistant would probably be different from those to be discharged by the unqualified assistant.

H. G. T.—We take the same view of his visits and services as our correspondent does and regard the fee as reasonable. He does not mention the number of his visits or the length of the attendance, but supposing these points to involve nothing unusual we think he is justified in his charges. Litigation is to be avoided if possible. Surely the friend for whom our correspondent was acting can adjust the dispute.

Practitioner.—The medical officer of health must discharge his public duties and we see nothing in what our correspondent tells us that would indicate that those duties have been exceeded or discharged in an officious manner. A pamphlet entitled "Difficulties under the Infectious Diseases Notification Act," which gives full information on such points, can be obtained from THE LANCET Office, price 1s.

Dr. W. T. Greene.—The treatment of neuralgia by chloride of ammonium has been known and practised for many years past. How the drug acts is not well understood, but that it does succeed in many cases is indisputable. The late Sir Thomas Watson was a firm believer in this treatment, *vide* his "Lectures on Medicine," fifth edition, vol. i., p. 753.

Geometry.—The climate is very bad, although the risks have undoubtedly been often exaggerated. Our correspondent's temperate habits and sound bill of health are greatly in his favour. We cannot take the responsibility of actually advising him to go, but many who have gone under less favourable auspices have come to no harm.

Tooma is recommended to continue to refer the agents to the registrar. There is no illegality in signing forms of statement the accuracy of which he knows, but there is no reason why he should take the responsibility upon himself save for consideration received.

Aberdeen.—The intention of the quarterly payments seems to us to have been that they should constitute an agreement terminable with quarterly notice on either side. The matter is one for amicable arrangement.

Mr. Frederick W. Collingwood will find the question thoroughly discussed in our columns. The points made in his letter have all been made before—some of them repeatedly.

Alchemist.—We understand that Sir William Crookes is to be the depository of the secret. We have no information whatever as to the company or the inventor.

G. A. M.—We agree with much that our correspondent says. But domiciliary visits have as a matter of fact been tried and found to work well.

J. T. can obtain the book from any circulating library or from the publishers, Messrs. Longmans, Green, and Co., Paternoster-row.

Mr. R. Varley is thanked for his interesting letter, the bearing of which is not, however, sufficiently medical for our columns.

Student.—The Students' Number of THE LANCET for 1897 gives very full information on the point.

Dr. C. Patterson is thanked for his communication. The enclosure will receive attention.

Juniper.—We do not prescribe or recommend medical treatment or medical practitioners.

Mrs. G. V.—The child should be taken to a medical man.

Cinctus.—We regret that we have no information.

During the week marked copies of the following newspapers have been received: *Halifax Guardian, Oban Times, Poole Herald, Rochdale Observer, Northampton Herald, Westmeath Examiner, Times of India, Pioneer Mail, Ayrshire Post, Wolverhampton Chronicle, Royal Cornwall Gazette, Walsall Advertiser, Yorkshire Post, Salisbury Journal, Architect, Wimbledon Herald, Newcastle Journal, Derbyshire Times, East Anglian Daily News, Builder, Dundee Courier, East Sussex News, Leeds Mercury, Banbury Guardian, Lynn News, Ulverston Advertiser, Devon Gazette, Bromley Telegraph, Western Press, Bristol Mercury, Manchester Courier, Sheffield Telegraph, Torquay Times, Liverpool Daily Post, Leicester Post, Herald of Wales, Carmarthen Weekly Reporter, Sussex Daily News, Cambridge Express, Lowestoft Standard, North British Daily Mail, Hampshire Telegraph, Warwickshire Times, Daily Mail, Grantham Times, Chester Chronicle, Brighton Gazette, Glasgow Evening Times, Leinster Express, Sanitary Record, Vectis, Mining Journal, Hertfordshire Mercury, Local Government Chronicle, Reading Mercury, City Press, Weekly Free Press and Aberdeen Herald, Lincoln Leader, Surrey Advertiser, Local Government Journal, Dentist, Shrewsbury Chronicle, L'Courrier de la Presse, Manchester Guardian, Goole Weekly Herald, The High Peak News, Buckinghamshire Express, Falkirk Herald, Keighley News, Prescot Reporter, Launceston Weekly News, Kelso Mail, West Middlesex Herald, Birmingham Mail, &c., &c.*

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